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THE BOILER-RATING QUESTION INCREASING IN INTEREST TO STEAM-FITTERS.

Since commencing our crusade for uniform and accurate boiler-ratings, we have had many letters of commendation and a number of communications on the subject, which have shown how greatly steam-fitters are affected by the immense differences in boiler-ratings at the present time.

The advisability of properly rating all house-heating boilers is recognized by every one engaged in the heating business. The work of securing a uniform rating is not receiving the active support that it should. Many manufacturers are desirous of creating a just rating for their boilers, but they have in mind only a rating satisfactory to themselves, and secured under their own conditions; in other words, a rating which is absolutely accurate as far as they are concerned, but absolutely useless to the steam-fitter for purposes of comparison with the ratings of other boilers. With every manufacturer honestly striving to give out accurate and self-satisfactory ratings which are absolutely useless for comparative commercial application, we have confusion a hundred times confounded. The steam-fitter is, therefore, thrown upon his own resources. He generally relies in his selection of a boiler upon the good-fellowship of the salesman, the recognized standing of the company manufacturing the boiler, the endurance of the customer, the elasticity of his figures, and the miraculous intervention of an all-wise but unseeing Providence. If all these happen to come together at the right time, the job is declared satisfactory, the money is paid over, and the steam-fitter has established a firm basis for another series of gambling mistakes, for you may be sure that the same miraculous harmony will not occur in the next job.

We will put this in black letters: **The rating of house-heating boilers is going to be made uniform.** How soon this desirable result will be accomplished, depends upon the steam-fitters. They can get what they want when they ask for it. Many of them are already asking for it, and manufacturers of house-heating boilers who can see the clouds before the storm comes, are already paving the way for a new

and more satisfactory order of things by incorporating in their advertisements a garantee of rating-values. It may be, of course, that the ratings they declare will be subject to change in the final analysis, but they are showing their good-will by backing up the ratings which they possess, and because of this they should be supported vigorously by all steam-fitters who desire to hasten the day of established ratings.

Notwithstanding the outlay of hundreds of thousands of dollars in popular-magazine advertising, with the object of creating a public demand for special lines of boilers and other heating supplies, the advertisers are discovering that the co-operation of the steam-fitters is essential to bring to profitable fruition their publicity-campaign.

Perfect co-operation can only be obtained through perfect knowledge, and as long as the steam-fitters are furnished with house-heating boiler-ratings of doubtful values, so long will they be reluctant or opposed to the installing and garanteeing of products without the manufacturers' garantee of efficiency. "Doubtful values" means values that are doubtful to the steam-fitter because of his inability to compare them with others.

The steam-fitter knows that failure in operative efficiency of an installation will not be charged solely against the manufacturer of the apparatus by the owner who asked for it, but the blame will be placed in fullest measure on the installer—the steam-fitter. Faulty installations in the past have given incentive to invention of the many generators, accelerators, pulsers, etc., all welcome as an aid in the hour of trouble or readjustment. The steam-fitter desires, however, to use these devices as part of his original installation and not because of unfortunate guessing on his part as to the heating-value of a boiler-rating without a known (to the steam-fitter) base.

The steam-fitter knows full well that the present system of rating offers unknown quantities to him, and he is prepared to give his support to the manufacturer of house-heating boilers who supplies him with the most accurate information concerning the methods by which the rating of the boiler in question has been arrived at.

Since the convention of the National Association of Master Steam and Hot-Water Fitters at Chicago, we have received the following letter, which reflects the mental attitude of many prominent steam-fitters throughout the country. There may be differences of opinion about one or two of the points raised in the letter, but there will be no difference of opinion on the paragraphs that emphasize the urgent need of the standardization of ratings. We will be pleased to receive from our readers their expressions of opinion on this important matter, and to hear from them what steps they are taking to protect themselves against possible evil results from the varying ratings to which they have to conform in their every-day practice.

Editor "Domestic Engineering".—I stopped at Chicago to hear the National Association of Master Steam Fitters discuss the question of boiler-rating and was very much disappointed to have them dismiss the subject with hardly a word of comment. It is of vital interest to all to learn what a certain size and type of boiler will do under given conditions and a full discussion by men actively engaged in the work would be of lasting benefit. All our experts dwell largely on the amount of coal a boiler will burn and the number of B. t. u. that will be generated, but I wish to know what percentage of those generated can be utilized and the type of boiler that will give the best results. Coal will burn in any of the boilers on the market, but we want to use the boiler that will send the highest percentage of B. t. u.'s to the radiator. We know from dismal experience how much coal boilers consume but would like to have the experts tell us how to conserve the heat units generated.

Enter:—Pat, the farmer and the cow.

The farmer tells Pat to plow a furrow to the cow lying down by the opposite fence.

The farmer goes to the house, Pat starts to plow, the cow arises to graze. Pat continues to steer for the cow.

Now who is playing the fool, Pat or the farmer? The farmer is the expert who dopes out rating for the manufacturer and has a fool idea that the cow is going to stay set. The point where the cow is, represents the conditions. Pat found by experience that the cow moved so he followed the cow. Pat was wise and had more sense than the farmer.

The heating business needs more Pats and less farmers, for the cows do move.

A boiler can have as many correct ratings as there are different conditions. Suppose there are 100 of these correct ratings; which one are you going to publish as the one?

I cannot rate a boiler unless I know the conditions, but if I know the conditions you may burn your ratings. I care not on what basis a boiler is rated, but for the protection of the public all boilers should be rated on a standard basis that intelligent comparisons may be made as to their capacities. We have too many gold bricks in the business. Weed out the fakers by demanding and compelling reliable reports from a common testing-plant operated by able and disinterested men. True, this will not show what the boiler will do in my house but it will prevent me from paying an 800-foot price for a 500-foot boiler.

The standardizing of ratings is but a part of our task if we would put the heating business on a solid footing. I feel that by standardizing conditions much good can be accomplished. While it may seem a herculean task, good results can be obtained by united effort.

A certain stack temperature is necessary to promote good combustion and any heat loss through the sides of the flue requires as much coal to replace as the heat lost through glass surface.

By using round flues of ample size with fire-clay lining, we conserve heat and reduce friction. With a boiler set close to a flue of this kind, there is absolutely no call for the use of round boilers with one or two sections above the fire-pot or short sectional boilers. While water is a great absorbent of heat, it does not act instantaneously, and a certain length of flue travel or a certain amount of

heat absorbing surface is necessary to give efficiency, and this amount of surface depends upon the draft. The more the better, up to the capacity of your chimney.

The foolish practice of calling one and two-section round boiler soft coal, and three and four-section hard coal boilers has caused the use of two-section boilers in all soft coal districts, regardless of flue conditions, with the result that on all good flues the most of the heat goes out of the chimney.

The difference between hard and soft coal boilers should not be in their length or height but in the size of the smoke passages. The length or height should be governed only by the efficiency of the chimney.

If I am correct in my deductions, the heating men of the country can by united effort secure needed reforms in boiler and chimney construction by a systematic campaign with the architects and builders.

It is high time that the heating trade be relieved from baneful effects of the avalanche of unsatisfactory jobs which are largely the result of permitting the boiler manufacturers to dictate the type of boiler they shall use. When efficiency per pound of coal, instead of profit per pound of iron, dictates the types of boilers, then, and not till then, will the heating trade enjoy general prosperity.

Every poor job loses and every good one makes business for us all.

B. O. Iler.

FRIENDLY CRITICISMS OF THE OHIO STATE PLUMBING CODE.

Editor "Domestic Engineering":

Acknowledging receipt of the copy of House Bill No. 479 for the State of Ohio, I wish to say that I have been carefully through Part 4, devoted to Sanitation, and find it in general so good that it is a pleasure to report that the criticisms will be but few, and those more in the nature of suggestions regarding the wording of certain sections than of the intent of the commission that had the framing of the code in charge. As the lines are numbered consecutively, I will refer to the different parts by line numbers.

Lines 4567-8 require that all wrought pipe must be of standard lap weld. As a matter of fact almost all, if not all, the stock wrought pipe, 3 inches or smaller, turned out is made with a butt weld, consequently, if lap weld pipe is insisted on it would mean a special order with increased price. As the lap weld pipe is all tested to several hundred pounds, and is sufficiently strong for the purpose, I believe it would be well not to distinguish between lap weld and butt weld in this respect for pipes 3 inches and smaller, but require lap weld pipes for those sizes only which are larger than 4 inches in diameter.

Line 4627 calls for not less than 3-lb. sheet lead for roof flashings. As a matter of practice, 3-lb. lead is almost too light, and, as the lightest weight permitted will be used, I believe it would have been well to limit the weight to 4 lb. per square foot.

Line 4661 requires that all unions used on the sewer-side of traps have "ground joints." As a matter of fact what is intended is metal-to-metal joints whether ground, machined or threaded. The old method of making metal-to-metal joints was by grinding the parts together with oil and emery dust. In modern machine-practice the joints are machined, thereby making the parts interchangeable, and perfectly tight. All 4 and 5-in. brass unions for water and air-lines carrying 300 to 500 lb. pressure are machined. Ground-joint parts, on the other hand, are not interchangeable and are seldom made. By calling for metal-to-metal joints it permits the use of either machined or ground joints, also screw-thread joints.

In Lines 4680-1 washers, red and white lead, and asbestos gasket are permitted for closet-floor flanges, but no mention is made of metal-to-metal connections, admittedly the most sanitary types of closet-floor connections made. I would suggest that the words metal-to-metal be included in these lines, and washers and red or white lead stricken out. Red or white lead are so little better than putty for the purpose of making and keeping floor flanges tight that their use ought to be prohibited, and asbestos joints ought to be required to make up perfectly tight without the use of lead, putty, or paste of any kind. The practice has grown up in various quarters of using hard asbestos gaskets, hard as so much rope, which of themselves would not make tight, then bed them in lead or putty. If putty and paste were prohibited, it would insure a better and softer grade of asbestos, and, of course, the best is not too good for this purpose.

Line 4774 calls for changes in size of pipe to be made by the use of "proper" fittings. I believe it would be well to state instead, "special increasers or reducers." The word "proper" generally leaves something open for further consideration, which is well to avoid in a code.

Lines 4807 to 4810 provide for the support of stacks. So far as it goes it is very good, but I believe it would be well to require the pipe-supports at the various floors of buildings 75 ft. or more in height to be so arranged that they would prevent the stacks from settling or swinging to one side, while at the same time allow them to slip through the hangers, if necessary, when the building settles.

Lines 4848-50 provide for either cast-iron or earthenware house-drains. I believe it would strengthen the code to restrict the use of earthen pipe to where chemicals are used in the sewers, that would destroy cast-iron pipe.

Line 4888 calls for open-jointed drain-pipes to be "properly" trapped. I believe it would be well to point out just what would be considered "proper."

Lines 4894-4904 regarding exhaust, blow-off and drip-connections might well give the sizes of tanks that will be required for different purposes.

Lines 4924-26 regarding inside roof-leaders ought to be enlarged upon to require some means to prevent the "creeping" which destroys so many leader connections at the roof line. At the present time architects call for copper offsets or copper telescope-joints, or other means to take up the movement of the lines.

Lines 5078-9 ought to give the size of grease-traps that will be required for different installations.

I come now to the worst feature of the whole code. The one really bad feature, I might say, for all the minor items pointed out are more oversights or unintentional slights, than bad sanitation. In the permitting of the use of latrines and range-closets, however, particularly in school buildings, the code is guilty of a crime against sanitation that I trust will not survive the first revision, which takes place in two years' time. Latrines are such an offense against decency that it is to be hoped the first state in the Union to adopt a comprehensive plumbing code, and one of such excellence as that of the Ohio code, will go the whole limit in giving us the little feature that means perfection pointed out in the letter.

Henry D. McCormack.

What He Wrote.

A widower who was married recently for the third time, and whose bride had been married once before herself, wrote across the bottom of the wedding invitations: "Be sure and come. This is no amateur performance."—Argonaut.

A PRACTICAL MANUAL OF STEAM & HOT-WATER HEATING

BY EDWARD RICHMOND PIERCE

In this section Mr. Pierce explains how water circulates in hot-water heating systems and for what purpose heat-generators or intensifiers are installed. He also tells about what he considers the best hot-water system for either open-tank or sealed jobs. The necessity of proper and careful piping on hot-water heating jobs is also dwelt upon.

SECTION XLII.

But what gets the water into the boiler against the combined head-pressure and heat-pressure at the crown-sheet?

As previously stated, the process is exactly the same as with the steam boiler. In the hot-water boiler there is an area of surface exposed to the action of the heat very much greater than the area of the connecting pipes that circulate the water after it is heated. Because of this the total quantity of water that is actually expanded enough to rise to some considerable distance higher than the highest point in the boiler cannot all get through the pipe opening, with the result that a forced circulation is set up in the boiler which sends the water into the pipe as it starts on the circuit in much the same manner that water is sent out of a hose nozzle. As soon as a complete circulation is established the weight of all the water in the boiler itself is lighter per cubic foot than the pressure due to head at the top of the boiler where the circulating pipe commences, and as it cannot get out of the boiler a pressure is created artificially that at least equalizes the static head at that

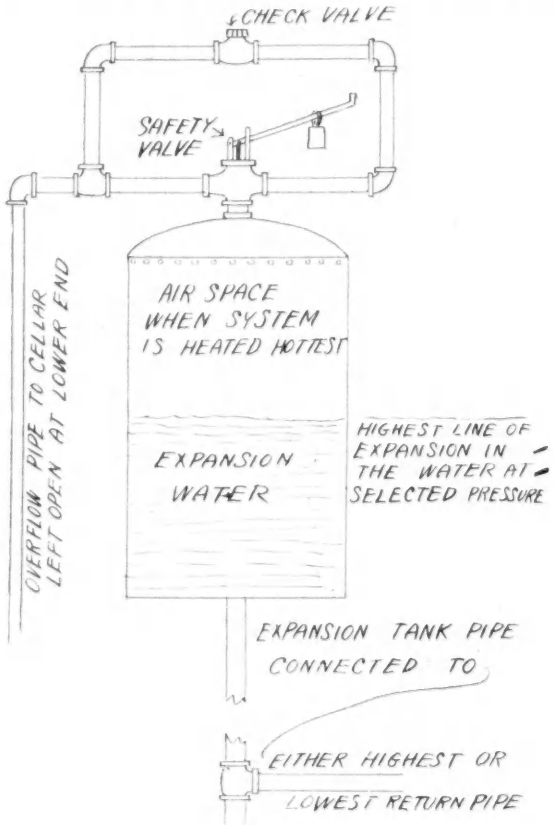

CHECK VALVE
SAFETY VALVE
AIR SPACE WHEN SYSTEM IS HEATED HOTTEST
EXPANSION WATER
HIGHEST LINE OF EXPANSION IN THE WATER AT SELECTED PRESSURE
OVERFLOW PIPE TO CELLAR LEFT OPEN AT LOWER END
EXPANSION TANK PIPE CONNECTED TO
EITHER HIGHEST OR LOWEST RETURN PIPE

Fig. 25.

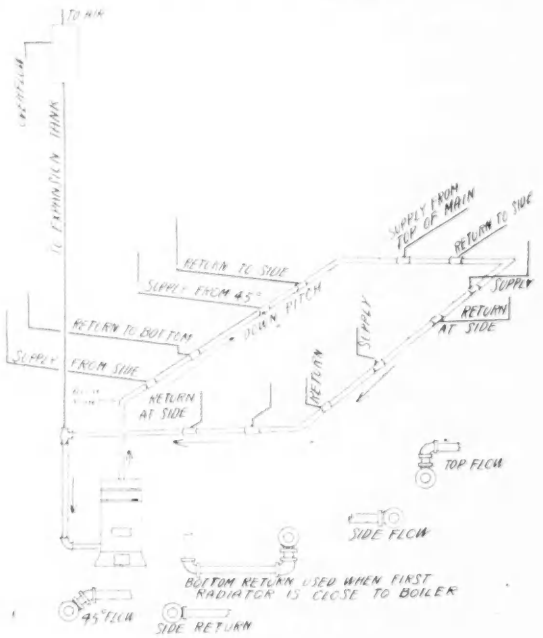


Fig. 27.

point, and as the heat in the water increases, this expansion, or pressure, extends higher in the pipe of an overhead system, or farther in the main of a circuit system, very much as happens with a steam job. This crowding of particles and loss of strength as they get away from the boiler is in every way similar to the action of steam.

The net result of this is that, while the total depth of water is the same in the supply and return as indicated in Fig. 24, the pressure equalizes at some point higher than the top of the boiler, thus making the unequalized portion of the return pipe longer than the supply, sometimes by several feet.

Assuming that the loss of 20 deg. from 180 to 160 is absolutely uniform per lineal foot for an apparatus as indicated in Fig. 24, the point of average temperature would be at E-2. At 170 deg. the water has an expansion or pressure force to exert against the down column of about .25 lb. per sq. in., which added to the longer fall in the

return pipe produces the extra pressure needed to keep the water continually flowing into the boiler through the return until such time as the heat in the boiler growing less fails to expand the water sufficiently to overcome the static head. When that time arrives there will still be some particles of water receiving sufficient heat to expand slightly for a time but they will be robbed of their heat

tity sooner than can usually be secured from hot-water, but the steam has nothing but the latent heat of the steam to give out, 966 B. t. u. per lb. of steam. When the heat in the boiler of the steam-job falls below the point where the water in the boiler can be maintained at 212 degs., the heat from the radiators ceases as quickly as it started.

With the water job it is different. The water not only

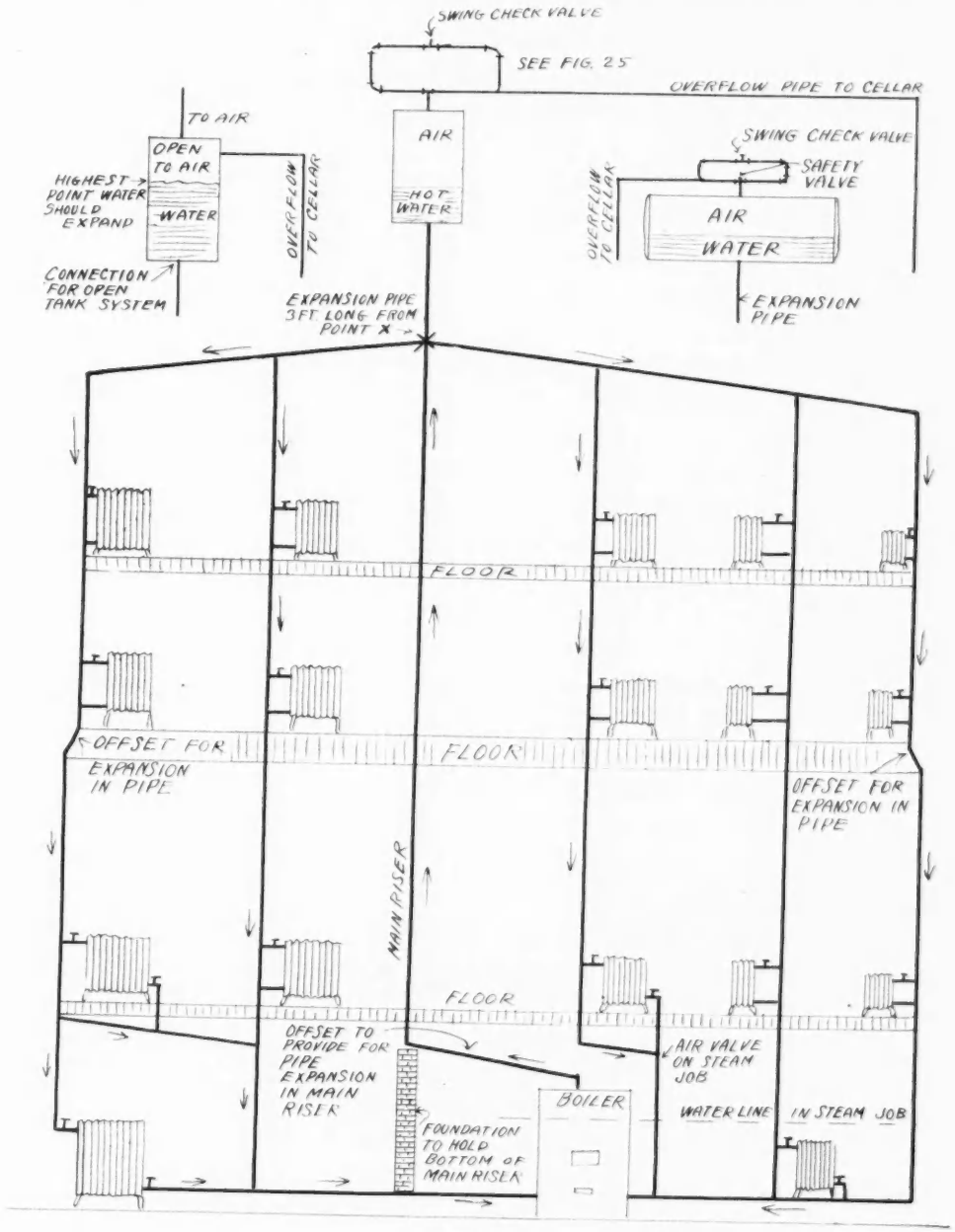


Fig. 26.

by the other particles in the boiler before they force themselves out of the boiler and soon the active movement of the particles ceases.

Here is where the hot-water system gets its greatest gain over gravity steam jobs. The gravity steam job having but a comparatively small quantity of water to raise to 212 deg., gets heat to the radiators in an effective quan-

has a large bulk from which to deliver heat, but it continues to receive the heat from the fire and deliver it to the radiators to the extent of at least 100 deg. of temperature after the steam-point ceases. This refers of course to the open-tank systems for water, and gravity systems for steam.

With any sort of a sealed-tank system of hot-water the

case is somewhat different. Given an overhead, or attic-circuit water-system sealed to 25 lb. pressure at its highest point, and pipes smaller than would be used for a gravity steam job limited to 2 lb. at boiler can be used. The radiators would be smaller than would be required for the steam job. Reserving 20 per cent of the usable pressure for emergencies, the radiation can be figured on the basis of 20 lb. pressure or at a temperature difference of 190 deg., but all the heat of the fire above about 100 deg. will be delivered from the radiators to the room.

All the patent heat-generators, so-called intensifiers, and the like that have come on the market within the past few years are nothing but carefully prepared seals operating at anywhere from 10 lb. to 30 lb. pressure. A well-adjusted weight safety valve set as per Fig. 25 is a safer and more sensible attachment than some of these patent seals now on the market. The weighted safety valve has also the compensating feature that you can know exactly what pressure you are sealing in the boiler.

If you are going into the sealed hot-water business, and within reasonable limits, there should be no great objection to it, keep the regulation of the pressure within your own control.

The overhead hot-water system as indicated in Fig. 26 is undoubtedly the best theoretically for either open-tank or sealed jobs. Next to that I would say turn the overhead system into the cellar. You will then have a single-main pipe-system, on the whole the most practical for either steam or water heating for ordinary house-work. This is shown in Fig. 27. The old-fashioned manifold system, where each riser was connected with the boiler, is not used to any great extent at this time, but there often arise conditions where its use is a matter of good practice. This is quite often the case where indirect radiators for a hot-water job are required. In most instances it will be better to feed the indirect stack from a simple circuit directly from and to the boiler rather than to attempt to take it from the main circuit that is to supply the direct radiators on the floors above.

Piping for hot-water heating, and piping properly, is a careful and should be a painstaking piece of work.

Water cannot be compressed as steam or air may be at one place and allowed to expand in another through the vagaries of piping and secure for the fitter the best results.

(To be continued.)

PITTSBURGH PENCILLINGS.

With considerable new home building in progress in the western Pennsylvania, eastern Ohio and northern West Virginia territory, plumbing and heating contractors are doing a very satisfactory business just at present. There are no very large contracts on the tables for the present, although it is currently reported that some $10,000 to $20,000 contracts may be ready for the bidders before a great while. Home building work takes the lead so far as present work is concerned, and of this there is about ample for all contractors to keep comfortably busy.

Supply houses report a good movement in trade, and there is a tendency among the plumbers to carry more stocks in their shops than heretofore. The past was characterized by more or less hand-to-mouth buying, that is to say, the plumbers were buying just for absolute needs for present work.

With a change of scene, so to speak, in Federal rulings, there is a tendency toward an easier movement in money, and the financial institutions are lifting the lid to a certain degree for the benefit of investors. This money is being put into new building, and so has a direct bearing upon the plumbing and heating trade.

With the sanitary pottery manufacturers, there is a good buying movement reported from the supply-houses, although the volume of business being secured from the larger plumbing contractors is of a character which indicates a revival of old times. The majority of the sanitary pottery manufacturers in the United States are operating their plants full time, and it is reasonable to believe that this condition will prevail throughout the balance of the year.

Scranton, Pa.—Another plumbing firm to branch out is that of Haggerty Bros. They have completed the purchase of a three-story business property at a cost of $15,000, wherein they will conduct their plumbing and heating business. The firm is the largest in this line in the Scranton district.

ANNUAL SUMMER PICNICS OF CHICAGO MASTER PLUMBERS TO ECLIPSE ALL PREVIOUS FESTAL GATHERINGS.

Convention days are over and the season for forgetting work is at hand. It is a difficult thing sometimes to persuade master plumbers that business won't go to the dogs if they give it a day's rest and themselves a day's outing. Now is the time to get educated.

The North and North-West Sides' Master Plumbers' Association will hold its annual outing at Kolze's Grove, Kolze, Ill., on Saturday, July 15th.

Many of the members will drive out there in their own rigs or in automobiles. Those who desire to attend by ordinary methods of transportation can either take the Irving Park Boul. car to the end of the line and a bus from there to the grove, or they can proceed by the Wisconsin Central to Kolze, the grove being only a short walk from the depot. The train leaves for Kolze at 1:30 p. m. A full attendance is requested, as it is the intention of the association to make the day a memorable one. Special invitations are given to members of all other clubs to participate in the basket-picnic festivities. The chairman of the committee is L. A. Clauson, 2334 Milwaukee Ave., who is assisted by E. C. Wagner, 2753 Fullerton Ave., and Chas. Mundt, 2202 Milwaukee Ave. Special particulars can be obtained from any of these gentlemen. The memories of last year's outing at the same place will insure early attendance this year of all participants.

If you want to have the time of your life in good company, walk over to your wall-calendar and put a red cross over July 26th. This will mean that you have pledged yourself to attendance at the great annual picnic of the Chicago Master Plumbers' Association. It is going to be held on a good day, Wednesday. The week will seem very short, and you will have new zest for business on Thursday morning if you don't overtrain on the eatables.

It is going to be a lake trip to Michigan City, on one of the boats of the Indiana Transportation Co. The ship will leave the Clark St. bridge at 10 a. m., arriving at Michigan City about quarter-past sun-high. Four hours will be spent in wholesome enjoyment, the return commencing at 4 p. m., the arrival at Chicago being timed for 7 p. m.

An active committee has been chosen to arrange for the pleasure of the excursioners. The children will race and the ladies will run, and tempting prizes will be given to the owners of the feet that twinkle the fastest. The chief feature of the afternoon's program will be a baseball game between the South Side Master Plumbers' Club and the North and West Side Master Plumbers' Club. This promises to be a terrific struggle. Already several of the master plumbers' wives are being kept awake by the pounding of the baseball in the basement as it hits the water-gage glass.

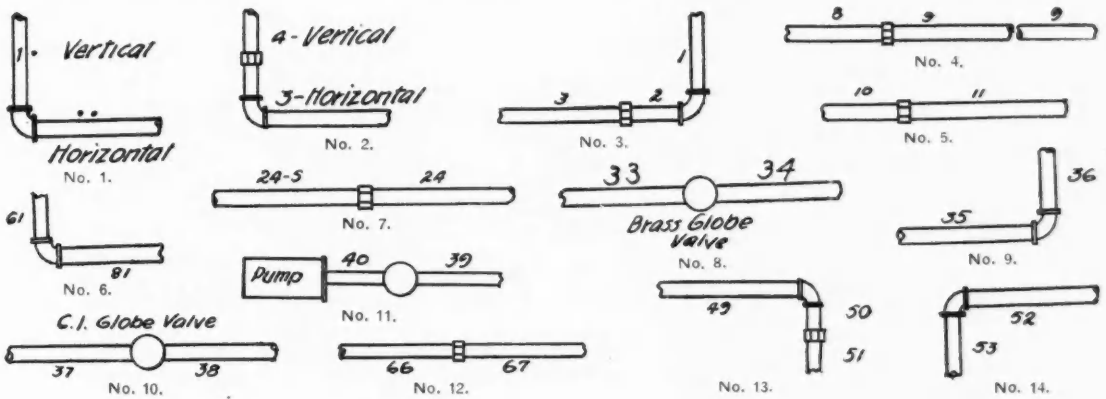
The association wants to make this outing an all-embracing one. (Not in a physical sense.) It is hoped that all the plumbing and supply houses will be induced to close down for the day and that their employees will participate in the festivities. The departments of the city administration having to do with plumbing affairs will also be invited to shut up shop and take a much-needed vacation. If there is any place in the City Hall where people earn their money, the Sanitary Bureau, with its various departments, is distinctly "It". We mean to go ourselves, and we expect to see you there. Tickets can be obtained from the Chicago Master Plumbers' Association, 718 Schiller Bldg., or from any member of the Entertainment Committee, whose chairman is E. C. Wagner, 2753 Fullerton Ave. Make your reservations early and bring your own weather along.

The Durability of Welded Pipe in Service.*

Frank N. Speller, Pittsburgh, Pa.

In again opening this much-worn subject for discussion before this society, it is my intention to touch on the results of recent investigations which it is believed have a most practical bearing on this important matter.

Before proceeding, let us for a moment review the fundamental reactions involved in the corrosion of iron, so as to have a clear conception of what is going on when, as we say, a pipe rusts. The most satisfactory theory of corrosion is based on the fact that iron is slightly soluble in water, a property common to nearly all materials in nature. In itself this is not of serious consequence, since the quantity dissolved is so extremely small. Moreover, when iron is dissolved the water gives up an equivalent amount of its dissociated hydrogen, which is, so to speak, plated out on the surface of the iron, causing polarization and retarding further solution of the metal. Solution is



further retarded by the water becoming saturated with iron as ferrous hydrate.

If we are dealing with water free from dissolved oxygen or acids, an equilibrium is thus soon established, but if oxygen is present it combines with the free hydrogen on the surface of the iron, exercising thereby a depolarizing effect and allowing more iron to go into solution. The ferrous hydrate in solution is oxidized to insoluble ferric hydroxide and precipitated as rust, thus leaving room for more iron to pass into solution. Therefore, provided a continuous supply of oxygen is at hand, corrosion continues until the pipe is destroyed. Other things will accelerate the reaction, such as the presence of stray electric currents, increased galvanic action on the surface of the metal, the action of acids, etc., but practically speaking, in the case of water pipes, the amount of corrosion is nearly proportional to the quantity of oxygen brought in with the water, so that water free from dissolved gases is usually quite harmless and will not even discolor the bright surface of iron after years of exposure. It also holds true that air free from moisture is equally inactive and will not cause rusting; but we are not concerned with that phase of the problem this afternoon.

The elementary reaction of corrosion being one of solution, the physical condition of the metal, uniformity in composition, and the nature of the protective coating evidently have an influence on solubility of iron and, therefore, on the rate at which rust will form. These are points which the leading interest in the manufacture of steel pipe has paid considerable attention to for several years past, since the practical significance of these things has been better understood. It is important to remember, however, that solution starts on the surface, and, therefore, that accidental differences in the condition of the surface may be much more influential in promoting solution of the metal than irregularities in the metal itself. This applies particularly to mill scale which forms with iron a galvanic couple having a potential many times greater than the worst possible case of segregated or irregularly distributed impurities found in the metal.*

Many who have observed the increased destruction of piping and other metal products nowadays have concluded

*Read at the 17th annual meeting of the American Society of Heating and Ventilating Engineers, held in New York City, Jan. 24, 25 and 26, 1911, and reproduced here in excerpt form in accordance with the society's rulings.

The author of the paper supported his claims by a series of detailed notes on corrosion-cases of both iron and steel pipes in service-lines, presented in tabular form. These notes specified the material, the gage, the pipe-sizes, length of time installed, approximate proportion of time that the lines were used, character of service (mostly hot-water, boiler-feed, horizontal), the depth of pitting and the general condition. The range of time-service was from one year to eight years, most of the pipes being in fairly continuous service. The depth of pitting did not seem to be proportionate to the time of service. The variations in pitting depth were doubtless due to other factors than time-service, chief of which are the character of material, temperature attained, and the nature of the water used. Figures presented, however, seemed to support the contentions of Mr. Speller effectively.

*In order to see if there was any relation between the quality of the material judging by the chemical analyses and the local pitting due to corrosion, we selected two pieces of what turned out to be wrought-iron pipe from the same line, one sample of which (No. 44) was comparatively free from corrosion, while the other (No. 45) was badly pitted all over. The analyses of drillings taken from these samples are given below:

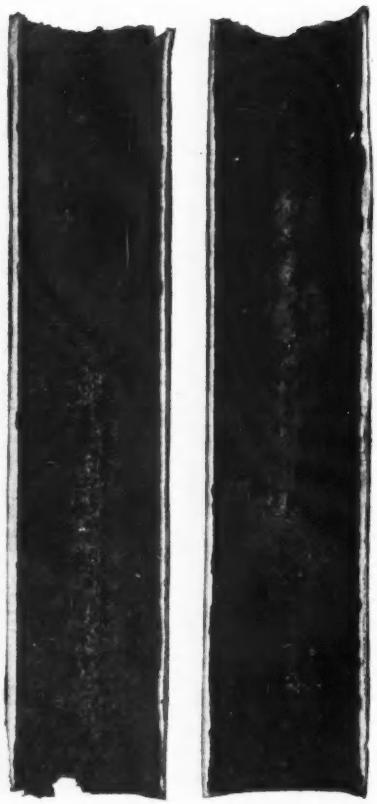
No. 44.		No. 45.
.160%	Phosphorus	.120%
Trace	Manganese	.13
Trace	Carbon	Trace
2.95	Oxides	3.40

In another case a piece of wrought-iron was found to be pitted in a few places, but by far the larger portion of the inside surface was free from corrosion. Analyzing the pitted and the clean surface we found the following composition:

	Sample No. 1—	
	Around Pits.	Clean Surface.
Sulphur	.023%	.019%
Phosphorus	.370	.310
Manganese	Trace	Trace
Carbon	Trace	Trace
Oxides	2.75	3.00
	Sample No. 2—	
	Around Pits.	Clean Surface.
Sulphur	.021%	.020%
Phosphorus	.337	.315
Manganese	Trace	Trace
Carbon	Trace	Trace
Oxides	2.80	3.00

This does not indicate any significant difference in composition. The probable explanation for the difference in effect on materials like the above which have practically the same composition is that the surface exposed to the water was in one case better protected than in the other by the mill scale which naturally forms in the process of manufacture.

that there must be something radically wrong with the material of which these things are now made. A few years ago the cry was raised, and it is still maintained from some quarters, "Give us wrought-iron, so that the pipe will last." On the other hand numerous experiments have been made by independent authorities under conditions fundamentally those of service, which, on the whole, show

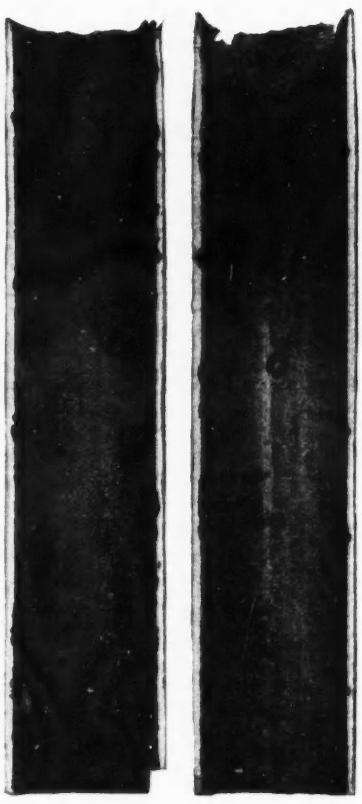


No. 24. Iron.

no practical difference between wrought-iron and steel, although these tests have indicated some important principles which should be observed in the manufacture of steel where corrosion has to be considered. The experiments we refer to, of which those made by Prof. Howe and Mr. T. N. Thomson (Proceedings A. S. for T. M. and Proceedings A. S. of H. and V. Engrs.) are examples, were sometimes conducted in the laboratory by immersing pieces of the metal in aerated water, and in other cases pieces of various kinds of pipe were actually put in service together for a certain period and the corrosion measured. It has been the business of those specially interested in making wrought-iron pipe to decry all such comparisons, although no contrary facts are offered; their case being based simply on the fact that wrought-iron pipes put in twenty years ago have given longer service in some cases than the steel pipe which has come into more general use in later years. This argument should not carry weight with the architect or engineer who considers the variable conditions under which pipe is used. There are many cases where wrought-iron has been in service thirty years, and others where equally good wrought-iron did not last two years, and much wider ranges of life are on record. What, then, constitutes a satisfactory test? The wrought-iron interests say the materials must be in service for years until they are destroyed. We agree, provided that both materials have been in continuous service together, as the pipe may last fifty years or but fifty days in service, depending on surrounding conditions, experience based on other than such strictly comparative cases is worthless and misleading. The author, knowing that in the past fifteen years iron and steel pipe have been made and sold side by side, undertook some investigations to see whether the iron and steel had been by chance installed together in the same lines. Obviously, this would give an ideal comparison, especially in the case of water pipe.

Let us consider for a moment the results of a study of pipe removed from hot-water supply lines in the New York City baths which was undertaken by Prof. Ira H. Woolson, formerly of Columbia University, now consulting engineer of the National Board of Fire Underwriters.

Briefly, he found that out of 86 pieces in eight bath-houses, which had failed through corrosion, 23 per cent. were wrought-iron, a larger proportion than might be expected, judging by the relative proportion of wrought-iron to steel on the market. In cases where pieces of iron and steel were removed fom the same line, they were found



No. 24. Steel.

to be equally corroded. The samples shown are cases in point.

We recently had an opportunity to examine the boiler feed-water pipe at the mines of the Frick Coke Co., which had been giving trouble in this way. Means were found to identify the pipe without removing it from the system. As anticipated, we found a number of cases where wrought-iron and steel pipe had been put in together. Samples of such pieces were removed and cut open for examination. The results of corrosion were expressed in

terms of the depth of the deepest pits, as was done by Mr. T. N. Thomson in his interesting experiments in hot-water service lines.

Generally speaking, these figures and inspection of the interior of these pipes show that there would be nothing to gain by using wrought-iron. A similar case of comparison in a cold water line was found in a greenhouse near Pittsburgh with the same results.

We recently had an opportunity to investigate the piping in an apartment in New York City where they were having trouble with the leaking of hot water lines which had been in service about six years. The second or third piece examined proved to be wrought-iron and was found in the condition shown. The other sample, taken from the system through which the same water had been continually circulated, illustrates how the steel was affected. This intermixture of iron and steel pipe can be explained by accidental intermixture in the manufacturers' or jobbers' stocks, and appears to be quite general.

An investigation of this question is now being conducted in the Research Laboratory of the Massachusetts Institute of Technology at Boston by Dr. W. H. Walker on piping in New England, working along the line outlined above. It is believed that much valuable information may be obtained in this way and the results certainly should be free from the criticisms which have been made against most of the experimental work done on this problem, viz., that the conditions were not strictly those of service and that the time of exposure was too short. We hope that members who have information as to where possible material for such investigation may be found will co-operate as far as possible in this work.

Prevention of Corrosion in Pipes.

If the trouble is not due to the material, why is corrosion so much more serious nowadays, and how can conditions be bettered?

Going back to the principal factor in corrosion, viz., the air dissolved in water, it has been found that oxygen is more soluble than nitrogen, so that the proportion of the two gases in solution is about two volumes of nitrogen to one volume of oxygen, instead of five of nitrogen to one of oxygen as in the atmosphere. Pure water at normal pressure will dissolve 14.7 parts per million of oxygen at 32 degrees Fahrenheit and 7.60 parts per million at 86 degrees Fahrenheit. At 210 degrees Fahrenheit oxygen is practically insoluble. So by heating the water the solubility at normal pressure becomes less, but as water is usually heated in closed heaters under pressure the gases are forced to remain in solution and in this condition the water may be said to be supersaturated. It is quite possible that in this state the oxygen is more active; the more so the higher the pressure. On drawing off hot water from such a line into a glass the gas is released and may be readily seen. Experiments have shown that under normal pressure water and air are most active in corrosion between 140 and 180 degrees Fahrenheit.

Evidently, then, if, as is the case, much more hot water is being put through service lines (particularly in large hotels, apartment houses and factories) today, we must expect a proportional increase in corrosion; so that, if three times as much hot water is being run through a pipe of given size under the same pressure and temperature, the pipe, instead of lasting 21 years, will only last about 7 years.

Knowing, as we now do, something of the cause and principles of prevention of corrosion, it should be possible for engineers to do much to remedy this state of affairs. Apparently there is as little need of corrosion in pipes and tubes around boilers and in hot water heating and supply systems as there is for smoke from a modern power plant. The author is now trying out a system for removing dissolved gases from water by heating the water to a sufficiently high temperature, preferably under normal atmospheric pressure or a vacuum, and then cooling if necessary by passing the air-free water through a form of economizer designed like a closed feed water heater in which the excess heat in the air-free water is taken up by the cold feed on its way to the heater. This provides for a continuous supply of air-free water for service lines at any temperature. The treatment may with advantage be carried out on the roof slightly below the level of the cold water standpipe. Another scheme for accomplishing the same purpose was proposed by the Royal Commission appointed to investigate the cause of corrosion in the Coolgardie (Australia) water supply main. They found after a thorough study of the situation that the conduit was suffering on account of oxygen dissolved in the water, and recommended that the supply be sprayed into vacuum chambers with the addition of 3 grains of lime to the gallon before passing into the pipe. A plant was designed for this purpose on the principle of a barometric condenser.

The addition of ferrous sulphate and some alkali to water, filtering off the hydrate of iron before the water enters the line, has been found quite effective in removing oxygen from solution. By rendering the water slightly alkaline before passing into the pipes, corrosion may be greatly lessened even though free oxygen is present. In many cases, however, this would interfere with the use of the water for certain purposes.

Doubtless other means will be found to remedy the trouble when the economic importance of the problem is fully realized by engineers. Elaborate plants are provided for treatment of boiler water, which pay for themselves in a few years many times over, but so far in this country we continue to suffer loss in water lines, and as a rule the responsibility is shifted onto the pipe manufacturer. Not that pipe cannot be improved, for steel pipe is now being made which is much better than that put out ten years ago, and even superior in lasting quality to the much-talked-of brands of wrought-iron. Protective coatings more suitable for modern conditions are also possible, but why not endeavor to apply the obvious remedies and remove the fundamental cause of the trouble?

INDIANAPOLIS HAS NEW PLUMBING ORDINANCE.

Without a clear understanding of the measure, the city council of Indianapolis, Ind., after a few minutes' discussion, passed a new plumbing ordinance last week. The ordinance was amended to eliminate the examination for plumbers, but provides that employers must pay a license fee of $5 for the first year and $2 for each succeeding year, the license being solely a matter of revenue.

It appears that the chief reason for rushing the measure through without an attempt to study its meaning was to provide an assistant for the present plumbing inspector. The ordinance does not limit the number of assistant plumbing inspectors that may be appointed, but it is understood the city board of health will appoint only one assistant at this time.

Seattle, Wash.—The Lavan Plumbing & Heating Co. are installing the plumbing and heating in the Hoge building, a new 17-story structure. The heating is overhead gravity system. The firm also has the plumbing in the Bon Marche building, Second and Duveny streets, a department-store.

The Range Boiler and Connections

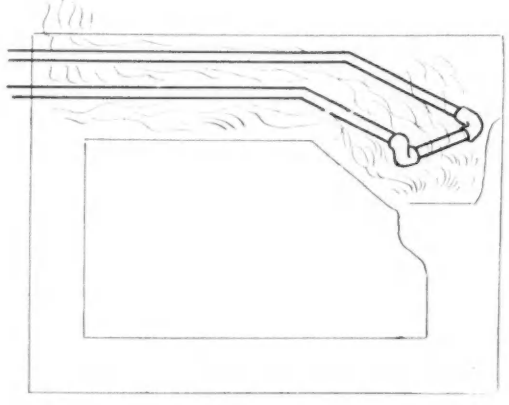
Uses, Abuses and Modifications

By Phoenix.

Chapter IV.

We have shown in the preceding chapters some of the normal, or perhaps we should say regular, connections between the water-back and the range-boiler. Various conditions arise, at times, where the plumber is forced to use his inventive powers to get around difficulties that are not down in the book. When a man can overcome such difficulties, it shows that he is by no means a copyist and also that he has mastered principles.

There are occasions when it is desirable to use a coil in the heating stove, and it is up to the plumber to get the best results possible. Now I believe that a coil will stop up fully as quick, or more so, than a water-back; but as the coil must sometimes be used, it is entitled to space in these articles. One of the most ingenious arrangements that has come under my observation for some time was recently presented in the columns of "Domestic Engineering" by Mr. George J. Thaler, Baltimore, Md. He states that a pipe water-back put in an old-style four-hole cook-stove, as he has shown it, will heat more water than a water-back. This would seem somewhat strange if one did not stop for a moment to consider the amount of surface exposed to the action of the heat. As shown in his drawing, it would seem as though there were about three times the amount of surface on the coil that there would be in the ordinary water-back, and when that point is taken into consideration it does not seem so wonderful. I am not intending, in the least, to detract from any advantages that this gentleman claims for the way in which he has installed the coil, for it seems to be both ingenious and practical and he is entitled to all credit due in the matter. This installation appears to me to be somewhat out of the regular way of putting in coils in stoves and, as the gentleman has claimed that it worked exceedingly well, I believe that it should receive due notice in these papers.

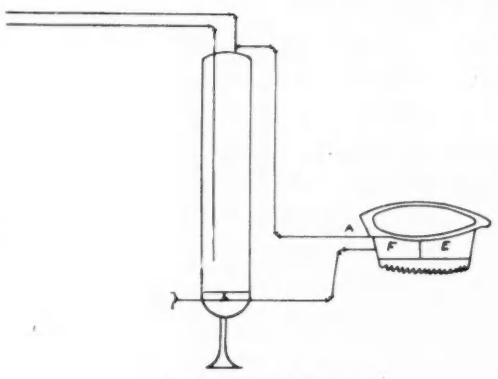


A Pipe Water-Back.

It will be remembered that I have said that the fewer crooks and turns there are in the pipes between the water-back and the range-boiler, the better it would be as concerns the correct working of the job. Sometimes, also, the range-boiler, for some reason or other, will have been set too low, as regards its relation to the water-back, and its workings. In "Domestic Engineering" for July 9, 1910, is recorded a case which well illustrates these points. "M. O." submits a sketch of a job where the hot-water is decidedly shy; and to his question "D" has given an answer which with the drawings will make the case clear.

"M. O." has made some very bad connections and one need not be surprised that the job did not work even if the water-front were large enough, which in this case it was not, as he had it connected to a range-boiler of some 100-gal. capacity, which would give very indifferent results unless an extremely hot fire were kept going all the time.

Now it will be observed that, in one of the sketches proposed as a remedy for this job, the pipe which connects the bottom of the range-boiler to the bottom opening of the water-front, is straight and has no crooks or turns in it other than at the "tee" just below the range-boiler. To connect in this manner of necessity brings the range-boiler almost entirely above the water-back, which, added to the absence of turns, or a cold-water trap, should give a most excellent circulation, provided that the rest of the job is done properly, and if the size of the water-back and range-boiler are correctly balanced, this particular range-boiler should heat rapidly and thoroughly. I do not say that hot water will appear immediately at the faucets, for no circulating-pipe is shown, but as far as the boiler is concerned (and that is all we are dealing with now), it should heat.



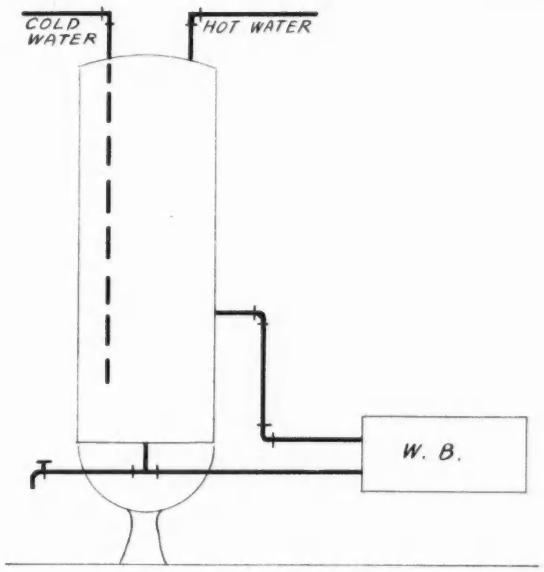
M. O's. Hot Water Job.

In case that it is found impossible to raise the range-boiler, which is frequently the case, another sketch has been very kindly given by "D," showing how the range-boiler could be made to heat in such an event. In the latter sketch there are more turns in the connecting pipes between boiler and front, yet it would appear that the job

should work and that, in drawing water, a direct pull would come from the water in the water-front; while, when no water was being drawn, a good circulation would result between boiler and water-front.

In the second sketch, I take exception to the length of the cold-water tube in the range-boiler as it is too long, showing as it does the end dropping below the level of the water-front, which might, at some time under conditions already explained, siphon the water-front.

In the other sketch proposed as a remedy, it will be seen that the end of the cold-water tube is some two or



D's Hot-Water Job.

three inches above level of water-back, which condition is the result of the manner in which the connections are made. Otherwise this same cold-water tube would have been too long.

In commenting on the size of the range-boiler, the gentleman suggesting the remedies coincides with my views of the subject, and that is that a 100-gal. range-boiler, under ordinary circumstances, is too much for the ordinary sized water-back to handle and do the work in a satisfactory manner. As I look at it, if the job is big enough to call for a 100-gal. boiler, one a trifle larger would probably give much better satisfaction and it would be cheaper, more practical and more efficient to put in a small sized storage-tank and individual heater, which, at a very small expense and almost no trouble at all, could be run just when hot-water is needed.

A subscriber from the land of "Show Me" sends the following communication:

Editor "Domestic Engineering":—Will you please have "Phoenix" tell us through the "Domestic Engineering" what size the hole at point "24" should be made, as he omits this in his talk on boilers in his article in the June 17th issue.

Missouri. "Show Me."

I will describe, perhaps, one of the easiest ways of making the hole. Take a file that is in fairly good condition and make a groove at the point where you have decided to make this hole in the cold water tube. You can, with little trouble, in a very few moments file deep enough so that you can see you are just through the pipe. Then take a one-eighth drill (or a 20 penny spike) and punch the hole through; a drill is preferred. If the water does not possess the quality of "liming" up the pipes, this hole should be large enough, although I have known plumbers who considered that the hole should be ¼-in. in diameter.

The ¼-in. size, however, would tend to admit a considerable quantity of cold water directly into the hot water that was being drawn into the hot-water pipe whenever a faucet was opened.

GOVERNMENT CONTRACTS TO BE AWARDED.

Supervising Architect James Knox Taylor, Treasury Department, Washington, D. C., will receive sealed proposals as follows:

Until 3 p. m., July 15, 1911, for the construction complete, including plumbing, gas-piping, heating apparatus, electric conduits and wiring, and lighting fixtures, of the U. S. post-office at Cordele, Ga.

Until 3 p. m., July 15, 1911, for the construcion complete, including plumbing, gas-piping, heating apparatus, electric conduits and wiring, and lighting fixtures, of the U. S. post-office at Winchester, Ky.

Until 3 p. m., July 17, 1911, for the construction complete, including plumbing, heating apparatus, electric conduits and wiring, and lighting fixtures, of the U. S. post-office at Ironton, O.

Until 3 p. m., July 20, 1911, for the construction complete, including plumbing, gas-piping, heating apparatus, electric conduits and wiring, and lighting fixtures in the U. S. post-office at Waterville, Me.

Until 3 p. m., July 28, 1911, for the construction complete, including plumbing, gas-piping, heating apparatus, electric conduits and wiring, and interior lighting fixtures, of the U. S. post-office at Rock Springs, Wyo.

Until 3 p. m., July 31, 1911, for the construction complete, including plumbing, gas-piping, heating apparatus, electric conduits and wiring, and lighting fixtures, of the U. S. post-office at Chicago Heights, Ill.

Until 3 p. m., Aug. 1, 1911, for the construction complete, including plumbing, gas-piping, heating apparatus, electric conduits and wiring, and interior lighting fixtures, of the U. S. post-office at Huron, S. Dak.

Until 3 p. m., Aug. 2, 1911, for the construction complete, includin gplumbing, gas-piping, heating apparatus, electric conduits and wiring, and lighting fixtures, of the U. S. post-office at Great Bend, Kans.

Until 3 p. m., Aug. 3, 1911, for the construction complete, including plumbing, gas-piping, heating apparatus, electric conduits and wiring, and lighting fixtures, of the U. S. post-office at Princeton, Ind.

Until 3 p. m., Aug. 4, 1911, for the construction complete, including plumbing, gas-piping, heating apparatus, electric conduits and wiring, of the U. S. post-office at Sulphur Springs, Tex

All proposals should be in accordance with drawings and specifications, copies of which may be obtained from the custodians of the above sites or from the office of the Supervising Architect at Washington, D. C.

Why She Asked Divorce.

"I suppose," said Collector Loeb, "that in the past a good many people looked on a strict observance of the customs laws from a selfish and worldly point of view. They were like Aunt Mary Persimmons.

"Aunt Mary called one day on the village lawyer.

"'Well, old lady,' he said, 'what can I do for you?'

"'Ah wants toe divo'ce mah husband,' said Aunt Mary.

"'Divorce old Uncle Bill?' cried the lawyer. 'Good gracious, why?'

"'Bekase he's done got religion, dat's why,' said Aunt Mary; 'an' we ain't had a chicken on de table fo' six weeks.'"—Philadelphia Record.

"The World Do Move"

By W. W. Hughes, Minneapolis, Minn.*

The quaint old darkey who is credited with having originated this bit of philosophy embraced a whole volume of literature in these four short words.

Most certainly the world moves, its strides are tremendous, but you and I who are part and parcel of the moving neither see nor feel it with sufficient distinctness to make it impressive. We would have to take a Rip Van Winkle nap of 30, 20 or even 10 years, in order that we might be duly impressed with the magnitude of the changes which are taking place every day, and the changes are for the better and not for the worse. Indeed, one of our leading politicians is credited with having said very recently that even politics is better than it was, that if men would do the things today that they did 20 years ago, they would be indicted and committed to the penitentiary.

That reminds me of the fact that a few short months ago the authorities of this state issued a pardon to a man who had been confined in the Minnesota state prison for 30 years. During the more recent years of his imprisonment, he had been given charge of the prison gardens and lawns, and his ability along these lines was something wonderful. Within the confines of his prison, he had successfully raised oranges and lemons, tropical plants and flowers and, like Luther Burbank, had grown new and startling combinations of fruits and vegetables. Previous to his imprisonment, he had led a roving life; had followed the sea; had visited all of the countries on the globe. In the prison he had acquired the name "Sinbad the Sailor," and by this name he was known to one and all. But remember, now, this poor old man, this "Sinbad the Sailor," had been in prison for 30 years, was bound in by four stone walls, with the heavens above, that was his world. And then the doors were opened. He was once more a free man, free to come and go anywhere and everywhere, and as such he walked out of the gates, and behold, he was as a stranger in a strange land. In the little town of Stillwater, he saw for the first time the horseless carriage, the automobile of many shapes and sizes, running to and fro with luxurious ease, almost noiseless, and he was amazed, and as he traveled down the street, he saw for the first time an electric street car, a large, splendid car, apparently moving without effort, and his bewilderment was greater than ever.

He entered one of these magnificent cars (the Twin Cities have the finest street cars in the world) and was whisked away over hill and dale to the Twin Cities of Minneapolis and St. Paul, and his amazement was greater than ever. He was in a city of paved streets, hurrying humanity, street cars, sky-scrapers, motor-cycles and automobiles, and remember, the bicycle had come and gone during his imprisonment.

He was dumbfounded, he was lost, never had he been so lost at sea as he now was in the midst of these two great cities. He was without a doubt a man without a country. He tried work of several kinds, but he could not accustom himself to the new conditions, and finally after several months of freedom, poor old Sinbad the Sailor knocked at the gates of the prison, begged for admission, and it was granted him. Today if you go to Stillwater, you may find him among the flowers and plants he loves so well, or you may find him driving about the town on errands for the prison, for he is a trusty; he wears no uniform, but his only home is a prison.

Suppose that he were not Sinbad the Sailor, but Fuller Ball, the ex-plumber, and figure out the changes that he would find, were he to return to the craft of his calling after an absence of 30 years, 20 years, yes, 10 years. To say that he would be amazed would be putting it mildly. He would not know what to make of our modern iron-pipe plumbers; he would search in vain for the old-time pan-closets, the short hopper-closets; the lead safe wastes; the symmetrical lines of lead water-supply pipes with the fancy hearts over the sink; the wainscoting around the kitchen sinks and the bath-tub, wash-bowl and closet; the old copper-lined bath-tub whose making required the best efforts of a host of copper-smiths; and he would declare most emphatically that the country was going to the bow-wows, that there was no chance for an honest mechanic to make a living, and you and I would wonder at his narrowness and prejudice.

Still, that is just what happened in the gathering and harvesting of grain. The laboring men all declared that the advent of new and improved machinery would deprive them of their livelihood, nevertheless, the world goes on, there is work for all, new conditions make new work, but it all tends towards an ideal, and so it is with plumbing. We are changing and improving and working towards the ideals in sanitation.

I have only been connected with the plumbing business for about 10 years, but even at that I can see the wondrous changes that are taking place in our trade. I remember how my old boss used to go to the supply house and pick out marble lavatories, and loud and numerous were his boasts as to his ability to pick out good marble. Then the enameled-iron lavatory made its advent, but the old boss still fought for the marble and insisted time after time that the marble would come back some day stronger than ever, and when finally the marble-ware took the count, he availed himself of the low prices offered by one of the local jobbers who had seen the light and wished to unload and he purchased the entire lot. Mr. Boss Plumber has most of that marble in his shop today occupying valuable space, and waiting for the day of its revival, which will never come. And today, the porcelain lavatory is endeavoring to displace the enameled one and it may succeed.

Do you remember the old orders for stock which you used to give the salesman when he called on you? There were soldering unions and nipples, trap-screws, basin and hopper clamps, rod-couplings, street-washers and thus on without end, and that stuff is all junk today, in fact, the plumbers of the new school do not know the uses of most of the material enumerated above.

Consider for a moment the closets of yesterday and today, the old-time short hoppers, the high iron tanks, the antique valves that were forever leaking, the front wash-out bowl, the wash-down, the syphon jet, and finally our friend Tilden's bowls, our perfected low tanks with almost noiseless, leakless valves, and flushometer closets of various makes and patterns. The high tank made a game fight to keep in the running, but it had to make way for the low (thanks to Messrs. Wolff and Douglas), the low wood tank will undoubtedly give way to the porcelain, cast-iron, cast steel, composition or something newer yet,

*Essay presented to the 29th annual convention of the National Association of Master Plumbers, held at Galveston, Tex., June 13-15,1911.

and these in turn will be superseded by some style of a flushometer bowl and seat made integral.

I recall how one of our manufacturers attempted to anticipate the change from wood to porcelain and announced to all the world that he was through making wood tanks and that the porcelain tank was his one and only bet. But he crowed too soon and after a disastrous season he got back into the wood tank line.

Another of the large manufacturers has tried for years to induce people to purchase iron-enameled closet-bowls, but they, too, have found that they were on the wrong track, and they are now selling a line of porcelain bowls, which plainly shows that the right material will prevail in the end.

The basis of all practical examinations for both master and journeymen plumbers is the wiped joint, a relic of the fast-fleeting past. We can recall the joy with which we greeted the old-time lead-burners, but now we witness the spectacle of common ordinary wire-pullers wiping joints of all kinds in manholes underground and on swaying wires overhead and all for a paltry $40 per month. Ye gods, what is this world coming to? It is coming to a realization of the fact that the wiped joint is passé and already my own men are installing plumbing in ordinary dwellings where the fixtures consist of a closet, bath, lavatory, sink, and laundry, and they are doing it in a manner which cannot be excelled and in the whole job there are only six wiped joints; and right now I am considering the elimination of two of them. The others I hate to part with, as I cannot see anything good in anything except lead pipe for the horizontal wastes under bath-room floors, although it is a fact that there are buildings erected today, notably the sky-scrapers, in which hundreds of fixtures are installed with never a wiped joint.

Year after year, we have worked like thunderation wiping 4-in. lead bends to ferrules, and it is only recently that one of our Minneapolis jobbers put out a ferrule of sufficient size to admit of the lead bend being run through the ferrule without first dressing the bend. And again, we can purchase bends with one end closed ready for testing, or corrugated bends to allow for the necessary expansion and contraction in a building.

I insist that the master plumbers should know better what they want than do the manufacturers; and such being the case should ask for what they want and insist on getting it. It may take time, but sooner or later some fellow will come along who will make what you want. For instance, we use a combination faucet for hot and cold water on bath-tubs, and separate faucets on the lavatories. Why? Simply because the manufacturers started to make them that way and we have neglected to tell them that they are wrong. Wrong in this way, that ordinarily the lavatory is used from 10 to 20 times as often as is the bath-tub. The only real necessity for a combination faucet on the bath-tub is to provide a ready attachment for the shower, which is used on about one tub in a thousand, whereas there is nothing more convenient or sanitary than to use running water when using the lavatory. Unless a combination faucet is provided, we are up against the proposition of washing in ice-cold water on one side and scalding hot water on the other, and for the reason that I do like to wash in running water, I very much favor a combination faucet for the lavatory, but find that it is almost impossible to secure such a fixture at a medium price.

Another thing most plumbers use a two-part laundry-tray with a Siamese waste connection and an ordinary lead trap necessitating the dressing and wiping on of about a foot of lead pipe. We, however, purchase a trap made especially for us which measures 25 inches from the center to the end, wipe it onto a solder union and it is ready to install. It costs the same as the lead pipe and the trap together, but saves the cost of the solder and the time necessary to wipe one joint. On one job this would be a small matter, but on 100 or 200 it amounts to a whole lot of money.

The tools of the trade are undergoing a great change; we now have our easy-cutting adjustable stocks and dies, our saw-tooth pipe-cutters, our ratchet reamers, and other new and improved tools without number. Did you ever put on an old-time die stock on the end of a piece of 2-in. pipe and sweat like a Turk trying to make it catch and finally call upon the bookkeeper, the teamster and the shop boy, together with a piece of plank, to make the blamed thing catch? Of course you have, and not once, but many times. Your old boss was probably one of the kind that would say: "Well, I bought those dies about six months ago and they ought to be good." Are you that kind of a boss today? If you are, get out of the rut and be a live wire! There are tools on the market today with which any lad of fifteen can cut 2-in. threads alone and not work very hard either.

We also note the many new fittings designed to save labor. For instance, in our town, sinks were first used with lead traps, the vent wiped into the crown of the trap, and the entire sink encased in wood, with a door on the lower part so that it could be used for the storage of pots and pans. They looked all right in 1890, but in 1911, it is the white enameled roll-rim sink and back cast integral, with nickel-plated faucets and traps, that has the call. Likewise, everything in the plumbing line is undergoing a gradual change, a change for the better at a lower cost than ever before. Verily, the plumber is doing a good work for mankind.

The continuous waste and ventilation system is coming into general use to the exclusion of the old, and while it is a great improvement over the old, still I look for the elimination of a whole lot of the venting as practiced today.

A salesman just the other day was boasting to me of some of the new patterns of gas-stoves now being manufactured by his concern and remarked that he knew his line was right because the old man (referring to his boss) had been a practical stove man for 40 years and the old man's son was now a graduate gas engineer, and between the two they would surely make good. Good argument, isn't it? Nevertheless, in our town, electricity is superseding gas, we have done work in a number of houses in which no gas pipe has been run except to the stove openings. The makers of electric appliances are certainly up and doing, the mails are full of their circulars, and if there is anything under the sun which is not now operated by electricity, you may rest assured that some genius is working towards its solution and that it will soon be with us. I would suggest that if our manufacturing friend has no younger son available, it would be advisable to rush grandson through an electrical course in some one of our colleges and that without delay. It would take a good many sheets of paper on which to describe or even enumerate the various electric contrivances in use today. Why, I remember, and so do you, how when we needed new half soles on our shoes, we took them to the little old cobbler around the corner, and carefully and earnestly he fitted a pair of soles to that old pair of shoes and nailed and sewed and rubbed and scraped and finally marked on one of the soles his mystic sign meaning $1 due and turned them bottom side up in the window that passers-by might examine his work. But now the cobbler has a rival; it is

the electric shoe-repairing machine, and it will do the job from beginning to end at one-half the cost of the old, and better, too. So it is with plumbing also.

In our own shop, we use electric lights, have an electric fan, and an electrically-driven pipe-threading machine; and on a recent remodeling job in a large concrete and steel building, we moved our electric machine right onto the job and cut the pipe in jig time. We also made all of the holes through the steel and concrete with an electric drill, and thereby saved a good many dollars.

We are approaching the time when the master plumber will be a merchant as well as a mechanic and, like the financier of today, he will realize that it will be necessary to do a large volume of work at a small percentage, but by judicious attention to the details he will be enabled to make more money and at the same time assist in rescuing the plumbing business from the joke-smiths of the would-be comic papers.

We must read everything pertaining to the business and I would also suggest that the magazine of business, "System," be subscribed to and read carefully from cover to cover each and every month of the year. It is chuck-full of nuggets of wisdom and worthy of any man's time and attention.

To succeed, we must be up and doing, we must absorb new ideas from our competitors and from the successful men in other lines; we must adopt the automobile to our business, for the collector, the estimator, the foreman, the delivery of material, the moving of the men and material from one job to another; we must think out our work in advance and purchase material that will fit the needs of the job conveniently; in other words, like our baseball teams, we must play the game together; forget the one-man team, remember that it takes nine men to make a complete team, and they must all hit the ball. We must co-operate with our men. Have the bunch in to supper some evening and talk things over when belts are tight and the cigars are smoking right, and you will learn a whole lot of things that you never knew before. The big fellows do it in other lines, why not the plumber?

Co-operate with your men by giving them up-to-date tools; by paying them their worth regardless of the scale; by having the right stuff right on the job at the right time; and also bear in mind the old Yankee saw that you can catch more flies with sugar than you can with vinegar.

Cheap material generally means dear labor. Get a typewriter and learn to use it. Keep your office in a business-like manner, but bear in mind that the problem of perpetual motion has not been solved and after starting your ball to rolling, it will need regular and systematic assistance from the man higher up or it will stop.

In a recent speech at Minneapolis, the Hon. Frank M. Nye, our able representative at Washington, recited the tale of two of his old neighbors who disagreed as to the boundary line between their two farms, there being a difference of 16 feet for about half a mile, and accordingly they fenced this tract off by itself and it became a highway and was known far and near as the Devil's Lane. In a like manner, we have our own Devil's Lanes between our own businesses and our competitors'. New shops are usually the offspring of old and are presided over by former bookkeepers, foremen or mechanics. Why not meet these fellows half-way, show them that it costs money to do business, and give them some of the benefit of our experience, and we will be amply repaid for divulging our so-called secrets. If we each contribute a little, we will all prosper under the banner of reciprocity, and instead of watching in timid wonder the progress in our line, let us take the initiative, and include ourselves in the statement, "The World Do Move."

NEW YORK STATE NEWS.

Rensselaer, N. Y.—The Rensselaer Water Co. is making extensive improvements to its plant. Among other things will be a new building and a modern filtration plant. The work is expected to be completed by the fall and it will enable the plant to furnish 1,000,000 gallons of filtered water every 24 hours.

Albany, N. Y.—Secretary Isidore Wachsman, of the board of contract and supply, is advertising for bids for the construction of the new West End high school, which is to be erected on the site bounded by Washington avenue, Western avenue and South Lake avenue. The bids will be opened July 10th and may be for the whole work, or separate bids may be submitted for either the plumbing, heating or electric wiring; the latter being a concession made on request of the Master Plumbers' Association. It is expected that the building will be completed by the fall of next year, and it will be one of the most complete structures of its kind in the country.

Albany, N. Y.—The contract for the heating of the addition to school No. 17 has been awarded to the James Hunter Heating & Construction Co., of this city. The contract price is $6,400. The contract for putting in standpipes for fire purposes in the city hall has been awarded to Clarence Keeshan, also of this city.

Watervliet, N. Y.—The new charter for Watervliet has become a law by receiving the signature of the governor. The charter, among other things, provides for an examining board of plumbers, and it is expected that such a board soon will be appointed, after which employing plumbers will be required to pass an examination, proving their fitness to conduct the business of plumbing. Appointments made thus far under provisions of the charter are: Commissioner of Public Works, Matthew J. Carr; Water Commissioners, Fred D. Durant and James McLeese; and Health Commissioners, Michael L. Walsh, Augustin L. Kelly, William Weingarten, A. W. Geer, Dr. R. J. O'Brien and Dennis J. Igoe.

CONTRACTS RECENTLY AWARDED.

Norfolk, Nebr.—Paul Grant was the successful bidder for the plumbing, heating and electrical work on the additions to be built to the Lincoln and Grant schools. Mr. Grant's bid of $8,698.75 was $400 lower than the other bids submitted.

Lawton, Okla.—Barnes & Lawrence have secured contracts amounting to more than $4,000 for installing plumbing and heating in J. A. Vreeland's new building at the corner of Third and D Ave. They also have contracts for plumbing and heating in the Stevens-Galyon building.

Duluth, Minn.—D. R. Black has been awarded the contract for the plumbing and heating in the Cook Investment Co.'s new hotel on Superior street.

Auburn, Neb.—Elmer Dovel has secured the contract for the installation of plumbing and heating systems in the new court-house at Pawnee City, Neb. The contract amounts to $6,000.

Clarinda, Ia.—John Spring, of this city, has secured the contract for the plumbing, heating and ventilating in the new school building erected at Tarkio, Ia. The consideration is $3,700.

Ida Grove, Ia.—Bart Varner has secured the contract for the installation of a hot-water heating system and a gas-lighting system at the up-to-date farm of Enoch Lindgren at Hayes, Ia.

INCORPORATION OF THE McGEORGE & COOPER MFG. CO.

The McGeorge & Cooper Mfg. Co. of Oakland, Cal., manufacturers of gas-heating appliances, have incorporated with a capital stock of $100,000, the incorporators being, W. C. McGeorge, G. D. and William Cooper, G. C. Gardner and W. A. Boston. The latter is of San Francisco, the others all residents of Oakland.

The Ninth Annual Convention of the Oregon Master Plumbers' Association

The Oregon State Master Plumbers' Association held its ninth annual convention on June 3, 1911, at Portland, meeting in the rooms of the Portland Association, at 109 Second St.

The first session was called to order by Pres. James Beggs, of Portland, at 10:30 a. m. The following appointments were made:

Credential Committee: C. J. Doughty, P. J. Mellis, and H. Donnerberg.

Resolutions Committee: W. N. Smith, Wm. Muirhead and Joe Kirchhoff.

Sergeant-at-Arms: J. R. Widmer.

Resolutions were presented by the Astoria Association relative to the appointment of an organizer for the state, and also resolutions changing various articles of the constitution and by-laws. These were read and referred to the Resolutions Committee.

It being reported at this time that there were in Portland a number of master plumbers from the state of Washington, who had come to attend the convention, President Beggs appointed Geo. Connolly, J. Ruedy and Thos. Roy as a Committee of Escort, to bring the Washington guests from their hotel to the convention-hall. The committee reported back, introducing the Washington delegation, who were received with a hearty welcome by all present, a short recess being taken. A motion was made to add the names of the Washington master plumbers to the roll-call.

The reports of the officers were ordered deferred until the afternoon session.

A letter of regret was read from John Donnerberg, the oldest pioneer master plumber in Portland, who is just recovering from a serious illness, which has confined him to his home.

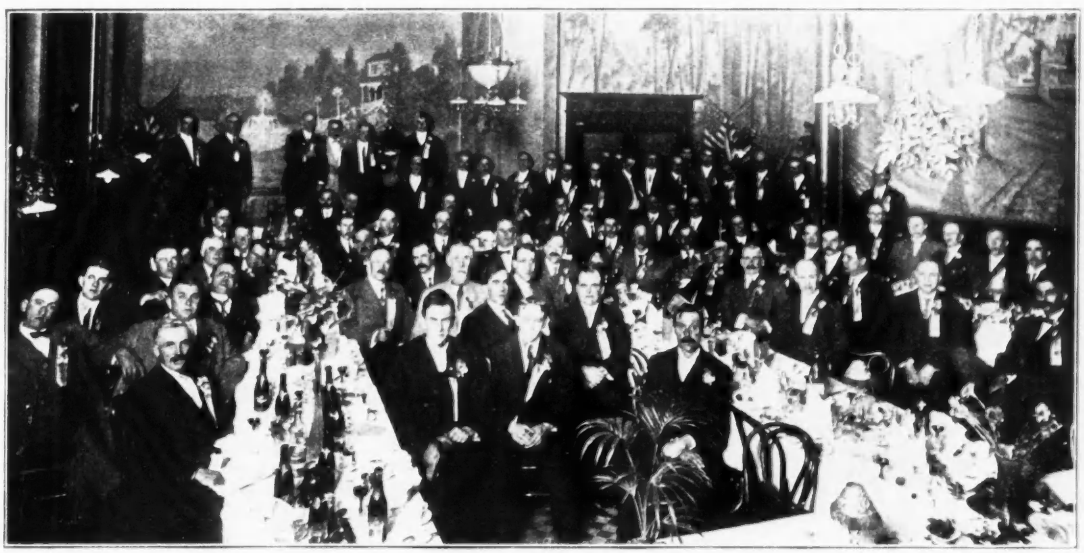
At noon a recess was taken until 1:30 p. m.

Afternoon Session.

The afternoon session was called to order by President Beggs at 1:30 p. m. At this session there was a large attendance of Portland master plumbers, in addition to the delegates.

President Beggs gave his annual report, which was very encouraging. A new local has been formed at The Dalles, with a membership of seven; there are new members in several other towns in the state, and by the interest in associational work manifested throughout the state, President Beggs expects a banner year.

The Resolutions Committee reported favorably upon the following resolutions, which were adopted by the convention: To discourage the practice of figuring plumbing work with general contractors, and to endeavor to do business direct with owners. To appoint a committee to act in conjunction with a member of the Washington State Association, for the purpose of taking up with the architectural associations in the various Pacific states the matter of making plumbing specifications separate from the general specifications, and refraining from letting plumbing contracts to general contractors. To secure the services of a competent man to act as a permanent secretary and general state organizer, the appointment being left to the Executive Committee.



The Banquet of the Oregon Master Plumbers Association at Its Recent Convention.

During this session addresses on business conditions were made by all of the visiting delegates, emphasizing the fact that proper organization is necessary to place the plumbing industry on the plane in popular estimation that it should occupy. The remarks were greatly appreciated by all present.

The election of officers resulted as follows:

President, Jas. Beggs, Portland; vice-president, W. N. Smith, Astoria; treasurer, Wm. Muirhead, Portland; executive board, Joe Kirchhoff, The Dalles; Percy Long, Eugene; J. Hansen, Astoria; H. Donnerberg, Portland; C. J. Doughty, Portland.

It was decided to recommend to the national association the name of Joe Kirchhoff for national state vice-president.

The meeting-place of the next convention is left to the

Executive Board, the time selected being the second week in May, 1912.

The convention then adjourned.

After adjournment, all members and visitors formed in line and marched to the banquet-hall, at the Richards Hotel, Park and Alder streets. Roy Quackenbush was toastmaster, and several short toasts were given by members. At the close of the banquet, the picture here presented was taken exclusively for "Domestic Engineering."

The visiting ladies were entertained by the wives of the Portland master plumbers. During the afternoon they were given an automobile ride through the city, and at six p. m. a dinner was given for them at the Imperial Hotel. In the evening all were entertained at the Baker Theater.

The Credential Committee reported the following in attendance:

Astoria.—W. N. Smith, J. Hansen.

The Dalles.—Joe Kirchhoff.

Gresham.—J. J. Woodaege.

Portland.—James Beggs, C. A. Anderson, Geo. Connolly, P. J. Meilis, S. Murhard, Wm. Muirhead, Theo. Roy, J. Ruedy, J. Woodward, R. Quackenbush, A. Buchman, C. J. Doughty.

Those present from Washington were:

Everett.—C. A. Healy, M. B. Richards, R. M. Westover.

Seattle.—V. E. Ayers, P. J. Lavan, vice-president Washington State Association.

Spokane.—M. Isbister, president of the Washington State Association; J. F. Meaghie, secretary Washington State Association; Jas. Smyth.

Tacoma.—J. Griggs, T. Bellingham, B. Olsen.

The Supply Fraternity.

The Peerless Pacific Co., Portland, Ore., donated the equipment for the tool-room. This room also was used as a refreshment-room, and it was surprising how many delegates took advantage of the opportunity to inspect the Peerless goods. Each caller received a numbered tag, and at the close of the convention a drawing was made. H. Brown held the lucky number, 76, which took the low-down outfit donated by the Peerless Co. The exhibit was in charge of H. T. McQuade and M. B. Sawyer.

The following supply concerns were represented as indicated:

Crane Co.: R. M. Silknettes and M. Breman.

M. L. Kline: M. L. Kline and Tom Follett.

Gauld Co.: Wm. H. Warner and T. A. Frewan.

Wolverine Brass Works: E. C. Powers.

Standard Computing Rule Co.: T. A. Frewan.

WANTS CATALOGS OF PLUMBING AND HEATING SUPPLIES.

C. W. Barber, 2007 East State St., Rockford, Ill., will soon engage in the plumbing and heating business for himself and would be pleased to receive from our advertisers their literature catalogs, bulletins, etc. He is specially interested in water-motor pumps.

DISAGREEMENT BETWEEN THE OWNERS OF THE UNITED BRASS MFG. CO.

The Superior Savings & Trust Co., of Cleveland, O., has been appointed receiver for the United Brass Mfg. Co., in that city upon a petition filed by W. J. Schoenberger and Chas. A. Stone, Jr., against Chas. A. Stone, in which they ask for an accounting and the appointment of a receiver. This action was caused by differences between by the above-named gentlemen, all of whom are partners in the business.

CLARENCE GROSSWILLER DEAD.

Clarence Grosswiller, son of Jos. T. Grosswiller, manager of the Standard Mfg. Co., Toledo, O., died Thursday, June 22, in that city.

SEATTLE, WASH., PROHIBITS DIRECT CONNECTION OF WATER-CLOSET BOWLS WITH HOUSE SUPPLY PIPES.

By James McIntyre, Chief Plumbing Inspector.

The following report made by the City Board of Appeals of Seattle, Wash., owing to its clearness and decided tone, might well settle the question of the danger of connecting closet-bowls directly to the general house system of water pipes, particularly so, as at least one of the members of the board was, to say the least, very skeptical on the question before the test was made. This board, composed of men of prominence in this city, consists of one architect, one master builder, and one attorney at law, all practicing their professions and not in any way connected with the manufacture or sale of plumbing goods, and consequently in a position to render an unbiased decision.

The question at issue was, as stated in the report of the board, the enforcement of Sec. 18 of the plumbing ordinance, which reads in part as follows:

"Water-closets shall be supplied with water from a tank which is used for no other purpose. Each closet may be supplied from separate tanks, or one general tank may be used for a number of closets. Tanks shall be arranged with float valves and be of sufficient size to deliver at least four gallons of water at each flushing. There shall be no direct connection between water-closet bowls and house supply pipes. Flush pipes between water-closets and tank shall not be less than 1¼-in. in diameter."

I have insisted on this rule applying to flushometer valves as well as other closet connections, in which ruling I have met with considerable opposition, not only from architects and manufacturers, but from others who consider themselves well versed in sanitary science. The argument has been repeatedly advanced that the additional cost of installing tanks and the necessary flush pipes was restrictive, inasmuch as it put the cost of flushometer valves beyond the reach of the ordinary home builder, whereas, if they can be used in direct connection with the house supply, they may be installed at no greater cost than the ordinary tank closet. This point of cheapness may be well taken so far as the first cost in mere dollars and cents is concerned, but I do not believe in measuring health, and even life, by the standard of dollars and cents, whether this standard comes in the form of a nickel-plated, ivory-handled patented valve, or whether it comes in the form of the old-fashioned pan or plug closet valve which was relegated to the junk-pile years ago because of its unfitness. Nor can a coating of nickel-plate cover the defects in the construction of the much-advocated flushometer valve. I have yet the first one to see which is not a resurrection, or regeneration, of some valve used years ago in less elaborate form.

I believe there is too great a disposition on the part of some manufacturers and jobbers throughout the country, by their hired so-called experts, to interfere in the making and enforcing of plumbing laws. Or, in other words, there seems to be a disposition to belittle the old-time proven principles of the trade, to cut the vital principles of sanitary construction from such construction, in the interest of the sale of certain fixtures and apparatus. There are doubtless many men of practical experience connected with the trade who have seen this backward drawing of water from water-closet bowls through valves into the supply pipes at times when the water was shut off or under a weak pressure, when some valve or bibb was opened at a lower point. I have witnessed such an occurrence many times. The danger consists not only in the contamination of one house-supply

but that a considerable area of the city main might be affected in the event of the stool of a person afflicted with one of the many intestinal diseases having been deposited in the closet-bowl. This danger was recognized by sanitarians years ago and was one of the causes of the introduction of tanks in connection with the flushing closet.

The test was held, as the accompanying condensed report states, in the presence of the Board of Appeals, two representatives of the jobbing-house, an assistant plumbing inspector and myself, and proved beyond the shadow of a doubt that the contents of a closet-bowl can be drawn back into the water-supply through a flushometer valve by a partial vacuum occurring in the system, not only when the bowl is standing full, but, as was proven in this test and as actually occurred, water from the bowl was sucked back through the jet in the bottom of the trap, nearly emptying the trap itself.

At a recent session of the Board of Appeals the appeal regarding the installation of flush valves in closets without the use of a pressure tank, application to use which was rejected by James McIntyre, city plumbing inspector, was considered. One of the representatives of the manufacturers stated the case to the board, going into the matter with some detail, showing, by way of illustration with cuts, etc., and by actual demonstration of a sample of the appliance under consideration, how the valve was operated, stating that same had an automatic shut-off, that it required a 75-lb. water pressure, connected to a ½-in. pipe; and expatiated upon the general merits of the article. He stated that this type of valve was adopted all over the country as a first-class closet attachment; also citing the case of the Board of Appeals of Washington City overriding the ordinance of that city by adopting such type of valve. The gentlemen representing the appellants also submitted as evidence a communication from the Boston Health Commissioner, stating that these valves had been used in certain cases but did not admit a general adoption of fixture.

Mr. McIntyre was then called upon to state his reasons for objecting to the use of said appliance in this city, and made the statement that in the event of the board passing upon this particular type of valve, their decision would affect not only this, but many other makes. He further stated that his decision in the matter was based upon his interpretation of the plumbing ordinance, and that his objection to the use of this appliance was for sanitary reasons, in that water pipes for closets should not be connected directly to water supply for house service, for fear of contaminating the water.

After giving the matter due consideration, a motion was made that the board request the appellants to set up as a test, a flush valve whose supply thereto shall be a 1-in. pipe, with 20-ft. head, fitted closely in all the joints and made absolutely air-tight, plugging it so that it is filled with water, and that the water drain off from the bowl at once, with the bowl filled, thus proving that the valve in question will not siphon from the bowl with the valve open, as was contended by Mr. McIntyre; that this test shall be conducted in the presence of all the members and others interested, and that the appellants shall notify the secretary when prepared to conduct said test. This motion was unanimously adopted, and the members adjourned, suspending action until such time as an actual test of the appliance under consideration would bear out the statements of the appellants as to the merits of the valve.

At an adjourned meeting, the closet fixture was installed with 1-in. pipe dropping from closet valve a distance of 20 ft., with shut-off valve at bottom. Closet-bowl and 1-in. pipe were filled with water and the shut-off valve was then opened at bottom, with the result that closet-bowl was siphoned nearly empty. The test was repeated with a similar result.

This test was had for the purpose of determining whether or not the contents of a closet-bowl with outlet blocked could be siphoned into service pipes by a person drawing off water from the service at a lower level, with the city supply shut off from all service. The test fully satisfied the Board of Appeals that under above conditions, water would be drawn from clogged closet into service water lines. After above test was made, the board went into executive session. It was moved and carried unanimously that the Department of Sanitation be sustained in its ruling.

I wish to add a word of warning in closing regarding this cry of cheapening plumbing. If the manufacturers and jobbers wish to help in cheapening plumbing, let them cut a portion of their immense profits for the benefit of the home builders. Let them divide the profits with the plumber, giving him a chance to make a fair margin on his work and do it as it should be done, and still not overcharge his customers. Let us by all means have the plumbing work done in a safe and sanitary manner, and leave the owner to choose the fixtures and their trimming according to his means, so long as they are sanitary. It has been our experience with home builders and owners that they would prefer to pay plumber's bills rather than doctor's and undertaker's bills.

THE SUMMER MEETING OF THE AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS.

Secretary W. W. Macon, of the American Society of Heating and Ventilating Engineers, has just issued the last formal call to that society's annual summer meeting which is to be held at the Hotel La Salle in Chicago on Thursday, Friday and Saturday, July 6, 7 and 8, 1911. The project earlier considered of holding the meeting on shipboard in a cruise on Lake Michigan and Green Bay had reluctantly to be given up, as altogether too small a number could be counted on to meet the requirements of the steamship line. That the meeting promises to be fully as interesting as that earlier formulated is indicated in the following announcement:

The principal feature of interest scheduled for the Thursday morning session, opening at 10 a. m., is the address of President Reginald Pelham Bolton, who will discuss in an illuminating fashion the peculiar relations between the amount of heat given up by the modern large community and the condition of the weather. The address, illustrated, will be sent to the members in advance.

Among the papers in hand and in process of preparation are: New Method of Rating Heating-Boilers and Furnaces, by Frank L. Busey, of the University of Illinois Engineering Experiment Station; Heating and Ventilating Two High-School Buildings from a Central Point, by Samuel R. Lewis; Ventilation of the Underground Departments of the Macy Department Store, New York, by D. M. Quay; Smoke Prevention in Relation to Heating, by Paul P. Bird, Chicago; Ventilation of Street-Railway Cars, by W. Thorn, Division Engineer, Board of Supervising Engineers, Chicago; Relations Among Manufacturer, Architect, Engineer and Contractor, by Perry West and George W. Knight.

On Thursday evening, the La Salle Hotel roof-garden is to provide a special program. The Illinois Chapter has organized a quartette and promises special music. The admission to the roof garden is, of course, complimentary, the individual being left to pay himself for such things as he may desire to eat or drink.

For Friday afternoon, an automobile drive of 25 miles through Chicago parks and boulevards has been arranged for members, ladies and guests and an inspection of the plant of Sears-Roebuck Co., which, with its 7,000 employes and monstrous printing plant, will be of interest also in respect to its power house and the indirect heating of the warehouses. On Friday evening there will be a boat ride on Lake Michigan, the details of which will be announced at the meeting.

If it seems inexpedient to hold a session on Saturday morning, the members will be at liberty to participate individually in the many attractions in business and other ways that Chicago affords. Arrangements will be made to visit the refrigerating and other mechanical features of the Blackstone Hotel, the Auditorium Annex and the La Salle Hotel.

Finally, a number of the members of the Illinois Chapter have signified willingness to have their automobiles available for entertaining the ladies whenever there may be an opportunity during the professional sessions. Visiting ladies are also to be guided through the Marshall Field department store, where tea will be served with the compliments of the Illinois Chapter.

THE JOURNEYMAN AND HIS HELPER

JOIN HANDS FOR BETTER WORK

DIFFERENT DOPE ON THE PLUMBER'S SON.

Editor "Domestic Engineering":—I see that some of the subscribers are much interested and worried as to what is to become of the plumber's son. A good many have sent in their views and now I would like to bring to your notice some that I read the other day, which impressed me as being about the most sensible of any that I have seen since Heck was a pup.

While the various technical schools are good, it is claimed that if no other education accompanies that, the boy will come out with narrow views—in other words, he will see no farther than the little circle in which he swings. Now it seems to me that here is one of the very points that you and some others that have been sending in their views, have been trying to set forth. The average man in this business was so trained that he is totally incapable of either looking ahead or taking a broad view of the situation. We see this petty contemptible meanness and selfishness, when we observe two unions fighting each other and throwing the building operations of a great city into confusion. When men of small mind and narrow views are, by one means or another, set in a position of power, the very fact that they are incapable of taking but one set view of any case makes their position one of danger to the great mass of people. If men were properly educated, and possessed the right balance, we would have no strikes, lockouts and this "unreasonable" competition would be eliminated.

To bring the dope down to practical facts, there seems to be a bigger demand for men who can steer the ship, than there is a supply of men who are big enough properly to control the helm. It is harder to find a man who can earn $25,000 a year than it is one who is worth $2,500 and the powers that be in this (and other) countries are always on the lookout for the man who can pull down the big dough. It looks as if those who get these positions were just "natural trotters," so to speak. But other nags have made fast time, though they had to be trained, to wear hobbles for long, long months before they could either trot or pace to advantage.

It looks as though most of the details have been dug up, but the underlying factors are considered most lightly. Doesn't that very thing show up most conspicuously in the plumbing and heating trade? Take any part of it, as I don't mean to limit it to the journeyman. He has been the butt of the debate about long enough. The other day the writer had occasion to ask for some information regarding certain fixtures, and wrote to a house some distance away for the same. He received the reply that he had better consult with the John Doe Co. near his home, as they (the distant party) were so far away that the information might leak out of the letter on the way and get spilled about generally. That wasn't the exact language, but it's what it amounted to, all the same. How does such an attitude compare with that of the manufacturer quoted in a previous article in your excellent paper, the man who would educate all his competitors so that they might produce better goods, as he realized that the higher the class, the greater the demand?

So it looks to yours truly that, in connection with the technical training which so many are seeming to crave, we need a broader education in the affairs of life, to bring about a better judgment in the individual and give us better and broader-minded men in all walks of life.

L. L.

"WHERE ARE THE FATHERS?"

Editor "Domestic Engineering":—I notice in the issue of May 13th, one of the parties that writes in to the paper asks the question, "Where are the fathers, that they must let the sons answer questions relative to the son's education and welfare?"

Some seem to have sent in good articles, as the writer remembers having read several in your paper, but they are far too few, for the great number of masters that there are in the country. A dozen, or maybe 20, out of some 20,000 in the country, makes a mighty poor showing for the plumbing and heating craft. Seemingly most of the fathers are too much interested in figuring out just how they are agoing to cut the other fellow out of that next job, to take any interest in their own advancement or that of their family either. While we all talk about advancement, the betterment of the business and all that stuff, the facts of the case are that the majority trot right along in the same old rut and do, each day, just the same as on the day previous, the week previous and the year previous.

Once in a while a "live wire" begins to hum, like "The Squire," for instance; but not even 100 "Squires" could liven up the mass of dead ones that encumber the face of the country roundabout. If they do not wake up before long, they will find, in about 10 years hence, that their business has gone to the dogs and that the hardwares have copped it all from superior judgment and better business methods. Let some of these silent guys chew on that fact for a while and then I will come across with some other items that will be of interest.

J. J.

A "FIRST-CLASS MAN."

Editor "Domestic Engineering":—I see, in one of your issues, that you ask when the apprentice finally becomes what we call "a first-class man." As no one has to date sent in an answer to the question, I will give my views upon the subject, though there will be some who do not agree with the points that I shall set forth. I may begin by saying that I have been at the craft and business some 20 years. Do not consider myself a "has-been" nor a strict "old-timer." I think that I can accomplish about as much figuring or actual work in a day as most others who are in the swim and I am hep to pretty much all of the "wrinkles" that are usual; yet I have never yet (since I got to years of discretion) had the nerve to call myself a

"first-class man." The term, as I look at it, is strangely misused.

In the strictest sense of the meaning, there are no first-class men. A first-class man should know big work and little work; he shouldl know all about the details of both kinds and be able to give any pointers to the men that might be required. It makes me laugh when I see some of these three-trade experts, who have put in some work in some of the towns or smaller cities, whoop it up about how much they have done and how fully they are posted along all lines.

Put them on a job like the La Salle Hotel and where would they get off at? That's what I mean by a "first-class man." He is a man that is able to take charge of a La Salle Hotel job, or to turn out a small job for John Jones at Squeedunk Corners, and I think that you will agree with me that there are few in the rank and file that possess those capabilities. You could pretty near count them on the fingers of both hands and not have many left over. Ask some of the big firms who do a general line of what may be called big contracts and see what their opinion of the matter is. Trusting that you may find room for this letter, I remain, Josiah Crabtree.

MODIFICATION OF THE INSTALLATION OF PLUMBING.

We are in receipt of some very interesting correspondence on the subject of a suggested "Modification of the Installation of Plumbing," which we take pleasure in publishing herewith, because it contains very instructive and valuable information on the subject.—Editor.

April 24, 1911.

The Inspector of Plumbing, Washington, D. C.

Dear Sir:—One of the features of a book that has recently fallen into my hands that has impressed me particularly is the subject of vents for plumbing fixtures. In the treatment of this feature the author gives a plumbing section showing a multiplicity of vents, similar to those required by the regulations of the District of Columbia. On the opposite page is another section in which all vents for fixtures are eliminated, protection from sewer-gas being afforded by adequate traps. The only vent in the section is that furnished by the projecting stack itself, which (it is interesting to note) serves the additional purpose of a downspout for the roof drainage.

It appears that this modified system has been adopted by a number of city governments, Cleveland, O., being the latest municipality to approve it. A section of the regulations of that city covering the innovation is quoted by the author.

Now the foregoing leads up to the query: Why can't you and your official associates give the people of the District this simplified plumbing, or something akin to it? You have the authority to do so, as I understand it is simply a matter of regulations. The new system, as the author of the publication referred to shows, has the endorsement of the best known sanitary engineers of the country.

Such a revolutionary reform would doubtless arouse the bitter antagonism of the local plumbers. But it would be a boon to the hundreds of residents of this town, of small means, who are at present prevented from owning their own homes, because of the excessive cost of building, and the present plumbing regulations contribute their share of the burden. A step was made in the right direction when the lawn vent was done away with last year. But the good work should continue. I venture to say that the suggested system would lower the cost of the average house by at least $100. The loss to the plumber would not, however, amount to that in every instance, as the owner would be able to satisfy a desire for better fixtures.

I can conceive no more inviting opportunity for the city officials to be of real service to the community than in this matter, touching as it does the pocketbooks of so many who are compelled to count their pennies. The plumbers are organized; the aspiring house owners are not. The city officials should, it seems to me, favor the citizens in this matter, when by so doing they will be following the latest developments in sanitation.

Very truly, John Doe.

April 24, 1911.

Mr. John Doe, Washington, D. C.

Dear Sir:—I have your letter of even date relative to a certain type of plumbing installation which you recommend for adoption by the District of Columbia.

The author of the book you mention is an engineer of considerable prominence in matters relating to sanitation in general; he has written several books upon the subject, in at least one of which he gives full page illustration of the multiple vent system (as he understands it) and of what he terms the single vent pipe system.

This illustration shows a very complicated system of venting, including not only trap venting, but safe waste venting and fixture local venting, and the drawing is such as to show a wilderness of small pipes, presumably made intricate for the purpose of comparison with a single pipe installation of this particular design.

There are at the present time practically three different systems of piping in use.

The actual single pipe system, which is applicable only to small buildings; the continuous venting system, which is applicable to structures of any size, and the double pipe system, with modifications, which is in use in the District of Columbia.

The single pipe system usually advocated by the author mentioned is the identical system in use 30 or 40 years ago. On account of its short-comings, it became necessary to provide a more complete air-circulation system for the purpose of keeping the waste pipes of a system clean and healthy, and for the purpose of relieving vacuum and back pressure on simple traps which had taken the place of the many deformed traps, which were found to be so extremely self-soiling in their operation as to be a menace to the health of the occupants of the building.

In the past few years, however, the centrifugal and the air-cushioned types of traps have appeared and have each been built into a multitude of what are erroneously termed non-siphoning traps, and it is claimed by the makers of these special fittings that the vent pipe in many instances would be unnecessary on account of the non siphonic qualities of these traps. These non-siphon traps are not actually non-siphoning in any sense of the word other than their having a sufficient body of water to cause a refilling action, which, of course, amounts to the retaining of a small seal, and while they are very greatly in advance of the old style of deformed traps, sufficiently so to entitle them to most earnest consideration, there are few or none at the present time on the market which can be termed self-cleansing to any degree. There have been upward of 30 different styles of non-siphoning traps submitted to this office for approval, and but two patterns or makes have passed a fairly easy test.

The question simply resolves itself into the use of the simple trap, which is the most cleanly fitting of the character made, and the use of its necessary adjunct of air-

circulation or revent lines; or the use of appliances that cannot be made self-cleaning and must be cleaned at reasonably short intervals, together with the omission of the air-circulation lines and the increase in size of main soil and waste pipes.

With one or two notable exceptions, men at the head of the profession are in favor of a modified form of individual back venting (together with separate simple traps), such as is in use in the District of Columbia today. At the last meeting of the American Society of Inspectors of Plumbing and Sanitary Engineers, a representative body that is unquestionably an authority on matters of this kind, the society went on record as being opposed to the further extension of the field of non-siphon traps and the omitting of the air-circulation pipes.

The single pipe system covered in the Cleveland Code mentioned by the writer was a very complicated combination of two-pipe and one-pipe systems, and I understand unofficially that these regulations are now in process of being rewritten on account of the impossibility of equitably enforcing them and the great expense entailed upon householders for various patented fittings and appliances used, the system in use there being more expensive than the District of Columbia method.

The writer has not evidently a very extensive knowledge of the theory of plumbing design, as one item he mentions as being a good one, that is, for the soil stack to act as a rain leader, is barred by practically every regulation in the country for very good and sufficient reasons.

The regulations in force at the present time in New York, Boston, San Francisco, Chicago, and St. Louis, and many other large cities, are more stringent (and expensive) than the regulations in force in Washington.

The present plumbing code has a clause allowing continuous venting, which is really the so-called one-pipe system, in case where advance approval of the installation is given, and this office has during the past five years encouraged its use in every instance where it could be safely availed of. Notable instances of its use are practically every public school building, the Southern Railway building, the Rhode Island Avenue Methodist Episcopal Church, Cosmos Club, Y. M. C. A., Provident Savings Bank, Union Station, Ouray building, Colorado building, Shea building, Kanns, and many others, and permits are now out for this type in the Southern Commercial Congress building, Evans building, Woodward building, Riggs theater and office building; in fact, in every case where it is possible to use this simplified system, it is suggested to the architects, builders, or plumbers at the time the plans are filed, it only being necessary to file an amended drawing showing the exact construction.

The difference in cost, however, for an ordinary dwelling between the system in use in this city and the system advocated by you would be very little (if any) on account of the increased soil and waste pipe sizes, inasmuch as the District regulations allow the use of a 3-in. soil stack and the omission of a vent for the upper water-closet, and the special patented traps and connections necessary for the single-pipe system, instead of the simple traps used here.

It is a recognized fact that up to the present time regulations have been made, changed from time to time and enforced on the basis of almost pure theory, there having been very few unbiased attempts to obtain accurate information as to the carrying capacity of pipes for wastes and for air-circulation, which knowledge is necessary before the matter of proper design can be accurately and intelligently treated.

This office has made upward of a hundred experiments during the past year in an attempt to get a working-basis for simplification of systems for small houses, but a lack of money has prevented the construction of an apparatus sufficiently sensitive and accurate to determine vertical velocities of small quantities of wastes in large pipes, as well as the shape and size of fixture discharges in horizontal piping. Very truly yours,

A. R. McGonegal, Inspector of Plumbing.

ADDITIONAL INFORMATION ABOUT THE SCHEDULE OF STANDARD WEIGHT AND EXTRA-HEAVY FLANGED FITTINGS.

N. L. Danforth, of Buffalo, N. Y., a member of the Committee of Standardization of the National Association of the Master Steam and Hot Water Fitters, has called our attention to some errors in the schedule of Extra Heavy Flanged Fittings as published in the June 3rd issue of "Domestic Engineering":

Size 16 in., all bolt holes should be 1⅛ in. instead of 1⅜ in.
Size 18 in., all bolt holes should be 1⅛ in. instead of 1¼ in.
Size 20 in., all bolt holes should be 1⅛ in. instead of 1¼ in.
Size 22 in., all bolt holes should be 1⅛ in. instead of 1¼ in.
Size 24 in., all bolt holes should be 1¼ in. instead of 1¼ in.

In connection with the use of the Schedule of the Committee on Standardization the following points should be observed:

1. Standard or Extra Heavy Reducing Elbows carry same dimensions center to face as regular elbows of largest straight size.

2. Standard or Extra Heavy Tees, Crosses, Laterals or Y Branches, reducing on run or outlets, carry same dimensions face to face and center to face as largest straight size.

3. If flanged fittings for lower working pressures than 125 lb. are made they shall conform in all dimensions except thickness of shell to this standard, and garanteed working pressure must be cast on each fitting.

Companion flanges for these fittings must be standard dimensions.

4. Where long-turn fittings are specified it has reference only to elbows, which are made in two dimensions, to be known as "Elbows" and "Long-Turn Elbows," the latter being used only when so specified.

5. All Standard Weight fittings must be garanteed for 125 lb. and extra heavy fittings for 250 lb. working pressure, and each fitting must have some mark cast on it indicating the maker and garanteed working steam pressure.

6. All Extra Heavy fittings and flanges to have a raised surface $\frac{1}{16}$ in. high inside of bolt holes for gasket.

Standard Weight fittings and flanges to be plain faced.

Bolts to be $\frac{1}{8}$ in. smaller in diameter than bolt holes.

7. Size of all fittings scheduled indicates inside diameter of ports.

For O. D. pipe use corresponding size of I. D. fittings.

8. These dimensions, both Standard and Extra Heavy, refer to either cast iron or cast steel fittings and rolled steel flanges.

Steel Flanges and Fittings are Recommended for superheated steam.

OBITUARY.

John R. O'Connor, a lifelong resident of Framingham, Mass., and who was associated with his brother, J. F. O'Connor, in the plumbing business in that town, died at the Framingham hospital on Saturday evening, June 3, after two weeks' illness. He was 54 years of age and single.

QUESTIONS AND ANSWERS

PRESSURE IN THE SEWERS.

Editor "Domestic Engineering":—In some of the towns that I have worked in, I have noticed that, at times, there was quite a pressure in the sewers. Now can you kindly tell me from what this could come?

M. L.

The root of the evil, we believe, in such a case, would be a lack of proper ventilation of the sewer, and might appear on installations where the system of using a trap on the line between the house and the main sewer was prevalent. If the main sewer were rather small for the work it had to do (and there are numerous towns and cities in the country where such seems to be the case, the city having grown beyond the expectations of the builders), and the sewer received the storm water also, there might arise an occasion from the sudden inrush of storm water when there would be considerable pressure at some points from the compression of the air by the water, few escapes for the air being provided.

An ill-ventilated and very foul sewer with small pitch might also provide an occasion for the accumulation of pressure from the gases thus generated. One other instance occurs to us, and that is in towns or cities that drain into the ocean or large lakes. In case of the cities by the sea, the tide might back up into the sewers and force a pressure of the air (lacking proper ventilation) and in the case of the lake cities, if the sewer emptied too near the margin of the lake, a long continued and severe storm might produce the same effect.

WHAT SHOULD BE THE RATIO BETWEEN THE FLUE-SIZE AND BOILER CAPACITY?

Editor "Domestic Engineering":—Will you kindly give us some information regarding flues and chimneys? We have been having trouble all the past winter with a hot-water job. Have no trouble heating the building, but the owner claims he has been burning 50 per cent more coal than necessary, that his heat is all going out of the chimney, from the fact that the smoke-pipe from the boiler to chimney gets red hot. The boiler has a capacity of 2,950 sq. ft., with 1,800 ft. radiation connected to it, leaving a surplus of 1,150.

We have just discovered that the plans call for a 9x12 flue, same to be lined, but the lining used measured 9x12 on outside and 7x10 inside. Now the boiler people claim the flue should not be less than 12x12 for this size boiler. We have the velocity but not volume they claim, therefore the gases; instead of combustion taking place in furnace, it goes off in smoke-pipe and flue, causing same to heat up, burning up the fuel and getting no benefit. What we would like you to explain is what causes the gases to combust in the flue? Are flue-linings measured inside or out? Is there any special rule on sizes of chimneys?

W. H. F.

The chimney is undoubtedly too small. A boiler having a capacity of 3,000 ft. of radiation would call for a chimney, under ordinary circumstances, of 16-in. sq. on the inside, or if of circular form, of 18-in. diameter.

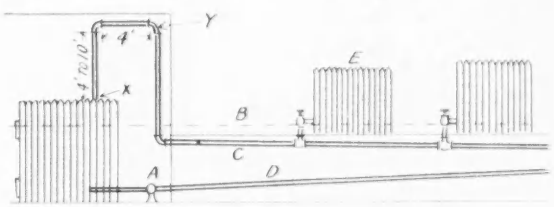
Coal contains volatile matter, and if these constituents of the coal are not ignited and burnt completely as fast as they are produced, there must be a loss of heat and also much smoke formed.

In considering the dimensions of chimneys as referring to boilers, measure the chimney on the inside.

IS THERE DANGER OF SIPHONAGE IN THIS INSTALLATION?

Editor "Domestic Engineering":—Please give us your opinion as to whether or not a one-pipe steam-job can be installed in this manner without any fluctuation of the water in the boiler, or any chance for the water to siphon out of the boiler. We have no chance to install an overhead system of steam-heating in this job but can raise out of the top of the boiler to 10 ft.

Item marked A is an electric pump and receiver for receiving the condensation and returning same to boiler. Item B is the water-line of boiler. Item C is the live



Is There Danger of Siphonage in This Job.

steam pipe supplying radiators. Item D is the return-pipe. Item E is the radiator. Amount of pressure to be carried is from one lb. to 10 lb.

The only question in our mind is whether the water will be likely to siphon out of the boiler in a system installed in this manner.

"Mc."

In regard to the water siphoning out of the boiler, if you put on an "equalizer," beginning at point we have marked X and making the end connect into the return as it comes to the boiler, we believe that you would do away with any danger. Also, place an air-valve at point marked Y.

Instead of using an electric pump, we should prefer a return trap. There are traps on the market that will operate on less than one lb. of steam, and you would then have the apparatus to assist the trap, or vice versa. Suppose the electric current should happen to give out?

Will manufacturers having return steam traps suitable for such installation kindly forward literature to "Mc," care "Domestic Engineering"?

FIRST COMPRESSION BIBBS.

Editor "Domestic Engineering":—Can you tell me who made the first compression bibbs? And at about what time?

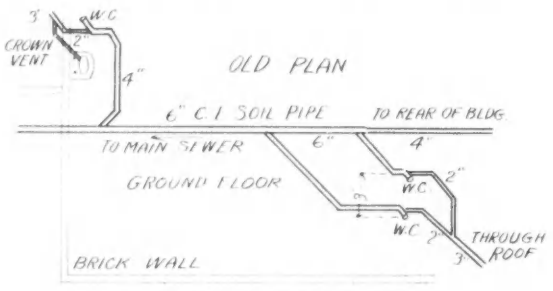
Los Angeles. J. C. Green.

They were made in the East some time between 1840 and 1850, and it is somewhat doubtful as to the firm which

comes first. The names of J. & H. Jones, Hayden & Saunders, and E. Stebbins are supposed to be among the first.

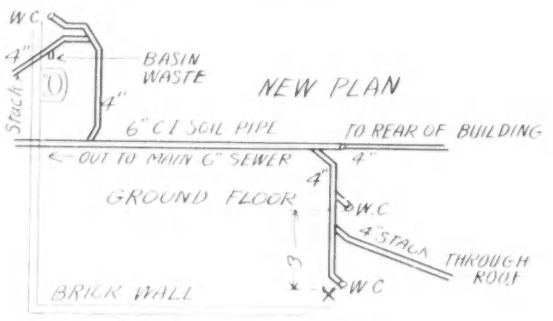
WHICH PLUMBING PLAN IS THE BEST?

Editor "Domestic Engineering":—Enclosed you will find two sketches of a job we are to install. The old plan did not show any 4-in. stack. The owner wanted the



The Old Plumbing Plan.

4-in. stack, so I suggested the new plan. The architect insists that the back-vent and crown-vent on basin is the only proper way. It is a one-story factory, cement floor.



The New Plumbing Plan.

The two closets are 3 ft. from closet to closet, and the basin sets about 12 in. from the 4-in. stack. J. E. R.

If the basin is only 12 in. from the 4-in. stack and in a one-story building, and a first-class non-siphoning trap is used, we believe you would be safe. As for the closets, if you use some of the patented seat-vents on the market, we believe you could very easily dispose of any odors. In the new plan, we should prefer to run the stack from point marked X if you do not use the seat-vents.

WHY IS AN EXPANSION TANK USED?

Editor "Domestic Engineering":—Why is it necessary to put an expansion tank upon a hot-water heating job?

Des Moines. D. Brooks.

The tank is used to provide for water-expansion. When water is heated, it expands and occupies more space. When the job is hooked up, the boiler, pipes and radiators filled, and the fire started, the water expands and there must be some place for it to go, or the job would burst. At 212 deg. the water would have expanded about 1/24 of its volume and this expansion must be reckoned on. The expansion tank should be, in capacity, at least 1/20 of the combined volume inside of the boiler, the pipes and the radiators.

Few fitters figure this accurately, merely guessing at the result, and so the expansion tanks are sometimes too small, frequently overflowing and robbing the job of the water that it should have; for when the fire goes down, the water will occupy less space and thus the topmost radiators will many times come to be ¼ full of water, and not heat to the extent that they should. Hence a call for the fitter and a resulting kick upon the part of the customer, who filled the job right, but it did not stay filled. He then wants to know what is the matter and some times he finds out and other times he does not.

Look to this end of the proposition carefully when you are planting the job, and avoid trouble for yourself in the future.

RULE FOR SHORT OFFSETS.

Editor "Domestic Engineering":—Will you be kind enough to tell me how much to add to the distance when figuring for a 45 deg. measurement?

Henry G.

This rule will not hold good on a distance of more than three ft. and should not be used on long offsets.

To each inch of distance between the centers of the two lines, add 13-32-in. The rule used on longer offsets is to multiply the distance between the centers by 1.414. This does not allow for the length of the fittings.

If you have an offset of 60 deg. (a 1/6th bend) multiply by 1.15, which if used as explained should give you the proper result.

WHAT PIPING SHOULD BE USED WITH THIS PUMP?

Editor "Domestic Engineering":—I am about to put in a pump job and I don't know whether it will work or not.

It is a pitcher-spout pump and is 2½-in. plunger. The pump is to be used to draw water from a cistern to a house located about 100 ft. from it. The water will have to be raised 9 ft. from the cistern, then carried over 100 ft. and raised 7 ft. to house.

I have intended to use 1-in. pipe. I should be glad to have some of the readers of "Domestic Engineering" tell me whether this will work, and what changes should be made in the piping, if any are necessary.

Viroqua, Wis. Geo. Sawyer.

WASTE OF HEAT IN UNCOVERED PIPES.

Editor "Domestic Engineering":—It seems to me that there is a custom quite prevalent in the trade which should be corrected. I refer to the practice of running the pipes bare, between the furnace or boiler in the cellar to the range boiler. Now these pipes, though small, radiate a certain amount of heat, and while it might not matter so very much as far as the addition to the cellar's heat is concerned, it does deliver the water to the range boiler in a cooler condition than it would be otherwise. Just because the flow and return pipes in such cases have not usually been covered is no reason why they should not be. These pipes, if covered with some good commercial pipe-covering, will deliver the water to the range boiler in a much hotter condition than would be the case if they were not covered. The coil or front in the hot-air furnace or heating boiler is just so much additional for the heating apparatus to carry and none of the heat should be wasted. Trusting that you will see fit to publish this I remain,

John L.

"Domestic Engineering" Cartoon on "Other Drinking-Cups That We Have Met"—XLIII.

If Those Four Fellows Would All Bat at the Same Time, These Cups Would Be Put Out of Business

If you want to possess a special proof of this or any other of our cartoons, let us have your request at once. We have many applications for our cartoons for framing and want to take good care of all demands made.

SANITARY VENTILATING WINDOW CO'S. NEW PLANT.

The Sanitary Ventilating Window Co. has been formed at Indianapolis, Ind., with $250,000 capital stock, and a new plant will be located at Danville, Ind. William H. Barton is at the head of the new company.

NOPACK BRASS CO. INCORPORATED.

The Nopack Brass Co. has been formed at Bellefonte, Pa., under a Delaware charter with $100,000 capital stock, to manufacture all kinds of plumbing goods from brass and other raw materials. John J. Bowen, of Bellefonte, is at the head of the new corporation.

THE JOHN SIMMONS CO. COMPLETES LARGE ADDITION TO ITS FACTORY.

The John Simmons Co., 104-110 Centre St., New York City, has recently completed a large addition to its factory and machine-shop at Charles Town, W. Va. This will be exclusively devoted to the manufacture of fire-equipment specialties, such as expansion-ring and shank hose-couplings, underwriter and plain hose-nozzles, auto sprinkler and Siamese connections, sprinkler-heads, extinguishers, chemical engines, valves, reels, etc. The need of initial fire-protection is being increasingly recognized. A drop of water will extinguish a spark, which, if left alive, may create a fiery holocaust unquenchable by Niagara's flooding. To those interested in shop or factory fire-equipments, the John Simmons Co. will be pleased to send a copy of its new catalog.

THE GEO. H. TAY CO. OPENS A NEW STORE IN SAN FRANCISCO.

A new store in San Francisco has just been opened by the George H. Tay Co. at 117 New Montgomery St. for the purpose of supplying the city trade. This move has been made for the convenience of local customers and will doubtless be greatly appreciated, as the warehouse formerly used was located on Minnesota street, a long ways from the main office and show room and in a section of the city not easily accessible to teams. The new warehouse is a large one and here will be carried large stocks for immediate delivery of both plumbing supplies and steam-fitting goods. The establishment is in charge of Mr. T. Quinn, a familiar figure in the local trade and an old employee of the George H. Tay Co. The Minnesota street warehouse will be maintained as formerly, as it occupies a very favorable position directly on the railroad with a spur track to the building, and here will be carried an immense reserve stock.

MURDOCK OPTIMISM SURVIVES FIRE AND WATER.

Murdock. Optimist. Cincinnati. There you have it in three words. The Murdock Mfg. & Supply Co., Cincinnati, was subjected to a fire-disaster on March 9th, which wiped out their Plum street headquarters. While the fire was still burning, the Murdock optimists secured the building at 810-812 Broadway and in 19 days had converted it into a new live-wire supply-house. Two thousand bins were built in one day. The magnitude of the task will be realized when we consider that the company carries 15,000 different articles in stock. On the day after the fire, 103 miscellaneous orders were filled. The whole story is told in a crackerjack red-blood folder, which can be secured from the Murdock Mfg. & Supply Co., 810-812 Broadway, Cincinnati, O. If you want a good dose of optimistic enthusiasm, write for it at once. As to the new quarters, the Murdock folks introduce it to you in this fashion, "Our Temporary Supply-House—Not Handsome—But, Oh, You Speed!"

MEETING OF THE CENTRAL SUPPLY ASSOCIATION AT DETROIT, MICH., JUNE 28, 1911.

The members of the Central Supply Association had a good-fellowship meeting at Detroit, Mich., on June 28th. The headquarters of the gathering was the Hotel Pontchartrain. No regular program was followed, but the day was profitably spent in the discussion of important trade-topics and the renewal of old and making of new acquaintances.

Four new members were added to the association's list—the Spencer Heater Co., Chicago; the Roberts-Hamilton Co., Minneapolis, Minn.; the Novelty Iron Co., Canton, O.; and the Buckeye Tank & Seat Co., Canton, O.

It is interesting to note the attendance of several non-members, all prominent men in the plumbing, heating and kindred trades. W. M. Webster represented the Brass Manufacturers' Association; Herbert B. Hallet, the Eastern Range Boiler & Welding Co., Consohocken, Pa.; J. W. Lyons, the Keystone Pottery Co., Trenton, N. J.; A. M. Maddock, Thos. Maddocks Sons, Trenton, N. J.; W. C. Mattack, the Potteries Selling Co., Trenton, N. J. An interesting visitor was A. C. Renkin, Toronto, Canada, representing the Central Supply Association, now being organized.

The weather was ideal, Detroit justifying its claim to be a place where life is worth living. On June 29th, the day following, disciples of the tee performed heroic feats on the golf-links and pursued $1.50 balls with a $10-a-minute enthusiasm.

Upon the call of the roll by the secretary the following members responded as present:

Atlanta, Ga.—General Supply Co.

Birmingham, Ala.—Hammond-Byrd Co., The, Chas. W. Badger. Jefferson Plumbers & Mill Supply Co.

Burlington, Wis.—Burlington Brass Works, S. Jacobsen, C. Roy McCanna, Geo. P. Stannard.

Canton, O.—Allman Co., W. H. McLain Co., The J. H., J. E. McLain. Novelty Iron Co., Geo. E. Downe.

Chattanooga, Tenn.—Cahill Iron Works, The, F. H. Caldwell, J. W. Gardner. Casey-Hedges Co., R. R. Rabe.

Chicago, Ill.—Allen Mfg. Co., W. D. American Radiator Co., Chas. K. Foster. Clow, Jas. B. & Sons. Crane Co., C. D. Little. Davies Supply Co., The, E. Buehler. Federal-Huber Co., D. A. Raymond. Gould Company. Illinois Malleable Iron Co., J. R. Steneck. Mark Mfg. Co., B. T. Bechtel, C. W. Larson. Monash-Younker Co. Mott Iron Works, J. L. Ryan & Co., J. J., J. J. Ryan. Spencer Heater Co., P. J. Dougherty. Weil Bros., I. Weil. Wilks Mfg. Co., S. Wolff Mfg. Co., L., Harold W. Wolff.

Cincinnati, O.—Williams Valve Co., The D. T., D. T. Williams, D. M. Forker.

Cleveland, O.—Cleveland Faucet Co.

Dayton, O.—Dayton Supply Co., The, Joseph J. Abel, J. W. Downer. McCormick Mfg. Co.

Denver, Colo.—Morse Bros. Mchy. & Supply Co., The, Geo. G. Morse. O'Fallon Supply Co., M. J., M. J. O'Fallon.

Detroit, Mich.—A. D. Mfg. Co., Wm. P. McIntyre. Detroit Brass Works, O. P. Benjamin, A. W. Fussey, G. C. Hall, F. L. Uhl. Detroit Lead Pipe & Sheet Lead Works, E. A. Morris. Detroit Lubricator Co., Herbert I. Lord. Detroit Range Boiler Co., E. W. Stoddard. Detroit Sanitary Supply Co., A. C. Cogswell. Harvey's Sons Mfg. Co., Ltd., A., James Harvey. Ideal Mfg. Co., Jas. P. Feeley, Jr. Kimball-Eisenberg Co., Perry F. Kimball. Penberthy Injector Co., Geo. H. Andrews. Sales

Co., Murray W., Murray W. Sales. Sterling & Skinner Mfg. Co., The, R. R. Sterling. United States Radiator Corporation, W. S. Herendeen, A. H. Ross. Walker Mfg. & Supply Co., John Walker, James M. Walker.

Dubuque, Ia.—Kretschmer Mfg. Co., Fred A. Kretschmer.

Eau Claire, Wis.—Hobbs Supply Co., W. H., W. H. Hobbs, Roswell H. Hobbs.

Fort Wayne, Ind.—Van Arnam Mfg. Co., Geo. H. Van Arnam.

Grand Haven, Mich.—William Heap & Sons, William Heap, C. R. Heap.

Grand Rapids, Mich.—Ferguson Supply Co., Ltd. Grand Rapids Supply Co., R. B. Kellogg. Wolverine Brass Works, L. A. Cornelius.

Greenville, O.—Ross Supply Co., Geo. F. Taylor.

Holland, Mich.—Thompson Mfg. Co., C. E. Thompson, Geo. A. Lutz.

Indianapolis, Ind.—Indiana Supply Co., J. Gilchrist.

Kalamazoo, Mich.—Enameled Tank Co., Carl H. Zwermann. Quinn Mfg. Co., L. A. Quinn, C. A. Schultz.

Kansas City, Mo.—Kansas City Pump Co. Young Supply Co., W. B., Geo. H. Gorton.

Kokomo, Ind.—Central Closet Mfg. Co., Geo. A. Harper, D. W. Berry. Great Western Pottery Co., A. V. Conradt, E. Willard.

Louisville, Ky.—Ahrens & Ott Mfg. Co., Samuel H. Moon.

Mansfield, O.—Humphryes Mfg. Co., F. F. Borchard.

Marietta, O.—Becker Mill Co., W. R. Hughes.

Menominee, Mich.—Emerson Supply Co.

PERSONAL MENTION.

Geo. H. Laib, of Laib Co. Louisville, Ky., is at present spending a well-earned vacation in Europe.

Herbert Kelly, founder and president of the H. Kelly & Co., of Minneapolis, Minn., was a visitor to the trade in Chicago last week. Mr. Kelly has a large circle of friends in the trade, and he is always a welcome visitor. He reported business good with his company.

L. L. Wilkinson, of Atlanta, Ga., has accepted a position as traveling salesman in the Brass Sales department of the Ohio Brass Co., Mansfield, O. He will continue to make his home in Atlanta and he will cover the southern states in the interest of Ohio valves and steam specialties.

H. H. Lane, a prominent engineer in Detroit, Mich., has been selected to make the plans for and have charge of the construction of the new large steel plant which is to be erected by the Haskel & Barker Car Co., at Michigan City, Ind. Mr. Lane has made a specialty of the construction and equipment of large manufacturing plants and the company is to be congratulated on having secured his services. He has now established temporary headquarters at Michigan City, where he with a number of draftsmen is busy at work on the big project.

Delegates Attending the Summer Meeting of the Central Supply Association, Held at Detroit, Mich., June 28, 1911.

Milwaukee, Wis.—Hoffman & Billings Mfg. Co., E. F. Niedecken. Rundle-Spence Mfg. Co., E. R. Spence.

Minneapolis, Minn.—Central Supply Co., P. J. Frey. Reid Supply Co.

New Orleans, La.—Marion & Co.

New York, N. Y.—Central Foundry Co., C. C. Todd. United Lead Co.

Noblesville, Ind.—Union Sanitary Mfg. Co., E. V. Brigham.

Omaha, Neb.—United States Supply Co., J. B. Rahm.

Pittsburg, Pa.—Bailey-Farrell Mfg. Co., W. B. Bryar, Thos. J. Norton. Fort Pitt Supply Co. Iron City Sanitary Mfg. Co., C. F. Meyer. Pittsburg Valve & Fittings Co., L. B. Jenks, C. L. Selkregg. Republic Iron & Steel Co., L. W. Crane, D. S. Guthrie, R. E. McDougal, T. R. Talbot, J. H. P. Wharton, R. P. Zint. Scaife & Sons Co., Wm. B., F. W. Peters. Spang, Chalfant & Co., A. M. Bell, J. D. Purdy, Jr., Boyd Watson. Standard Sanitary Mfg. Co., Jno. A. Noone. U. S. Sanitary Mfg. Co., A. H. Cline, Jr., John J. Plath.

Portsmouth, O.—Standard Supply Co., The, F. A. Ruldman.

Quincy, Ill.—Modern Iron Works, Geo. J. Fischer.

Rockford, Ill.—Rockford Brass Works, F. D. Keeler.

St. Louis, Mo.—American Foundry & Mfg. Co. Kupferle Foundry Co., John C., W. C. Ehrhardt. Monument Plumbing Supply Co., Wm. Ivy. Nelson Mfg. Co., N. O., W. H. Baker, A. B. Pierce.

St. Paul, Minn.—Crane & Ordway Co. Union Brass & Metal Mfg. Co., P. J. Frey. Western Supply Co.

San Antonio, Tex.—Higgins Co.

Salt Lake City, Utah.—Nelson Supply Co., Joseph, Jos. Nelson.

Sheboygan, Wis.—Kohler Sons Co., J. M., Walter J. Kohler.

Shirley, Ind.—Shirley Radiator & Foundry Co., Chas. E. Gates, A. W. Clement.

Sioux Falls, S. D.—Plumbing Supply Co., Chas. D. Symms.

Steubenville, O.—La Belle Iron Works, W. E. Watson.

Sturgis, Mich.—Miller-Hubbard Mfg. Co., Harry Verbeek.

Toledo, O.—American Plumbers Supply Co., The, H. A. Schlingman, F. W. Terwilliger.

Warren, O.—Day-Ward Co., A. G. Ward.

Wheeling, W. Va.—Trimble & Lutz Supply Co. Wheeling Sanitary Mfg. Co., F. W. Wheelock. Wheeling Steel & Iron Co., A. C. Frampton.

Henry J. Peterman, for many years salesman for the Standard Mfg. Co., of Pittsburgh, Pa., was some time ago forced to leave his position and go West for his health. His many friends in the trade will be glad to know that his effort was crowned with success as he has entirely recovered his health and that he is again back at his old stamping ground covering the northwestern section of Pennsylvania for the Standard Mfg. Co.

Geo. P. Stannard, sales-manager of the Burlington Brass Works, Burlington, Wis., and William Devine, jr., of the Potteries Selling Co., Trenton, N. J., were calling on the trade in Cincinnati last week. So thoroughly had they covered the ground that when last seen, about six o'clock one afternoon, they were looking for the address of a good chiropodist.

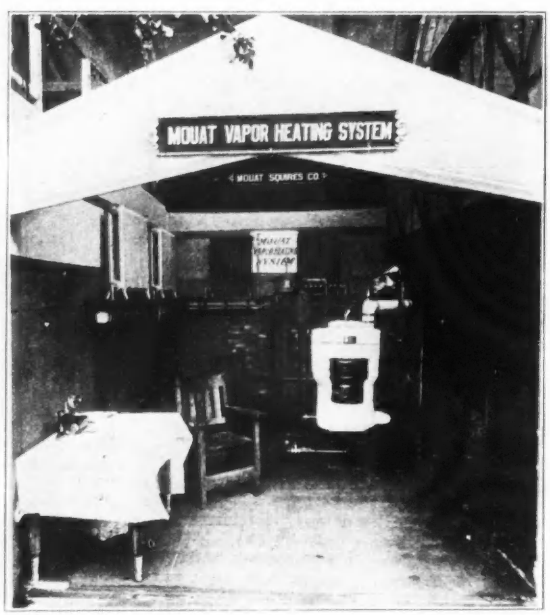
H. W. Finch, who went to the Pacific Coast at the first of the year to take charge of the interests of J. W. Kohler Sons Co., and who has attractive offices and show-rooms on the 10th floor of the Monadnock building, San Francisco, is in the Northwest at present, having started on a trip through that territory a few days ago. The local office was paid a visit recently by W. J. Kohler, who was on a trip of inspection. The accounts of this firm were formerly handled in this territory by a manufacturers' agent, but it was found advisable to open an office under the firm name and put this territory in charge of a direct representative. The result of this move has been a decided increase in business over former records.

The "Gold Dust Twins," in the persons of Jack Gibson, scout extraordinary of the Cooper Sanitary Mfg. Co., Philadelphia, Pa., and E. DeForest Winslow, sales manager of the Judd-Winslow Co., Muskegon, Mich., passed through Toledo, O., last week on their return from the Pacific Coast and the South Sea Islands. They brought tales of many exciting escapades on this flying trip. Gibson told that he has invested in property in Reno, Nev.

Winslow, on the other hand, shows a partiality for Old Mexico, to which battle-scarred country he has been making some heavy shipments of his famous "Keystone" closet seats. The boys are now on their return trip East and have plans laid for an extended hunting trip in the wilds of Maine. Always after big game, they intend chasing moose this summer. Gibson says he has received a contract to supply the Mexican insurrectoes now playing one-night stands around Juarez, with "Kleenatub," for use while on the field of battle. It would appear that Gibson has a fortune made if he is able to keep such a bunch "kleen." He expects to make a tour soon of all the leading Turkish bath-houses—from Hot Springs to Atlantic City—in order further to demonstrate this life-restoring article.

THE MOUAT VAPOR-HEATING SYSTEM EXHIBITED.

The Mouat Vapor Heating Co., 1246-54 West Fourth St., Cleveland, O., had a most attractive exhibit of the Mouat vapor-heating system at the Ideal Home Exposition recently held in that city. The system was connected up and shown in operation and attracted probably more attention than any other single exhibit at the exposition, and what is more it resulted in bringing the company a



The Attractive Exhibit of the Mouat Vapor-Heating System.

nice amount of business. The accompanaying illustration gives the reader a good idea of the attractive manner in which the exhibit was arranged. In passing it may be mentioned that the main feature of the Mouat vapor-heating system is the ability to control the heat to suit weather conditions. Each radiator is equipped with a fractional valve and may be kept partially or entirely heated as required.

TRADE LITERATURE RECEIVED THIS WEEK.

The Union Sanitary Mfg. Co., Noblesville, Ind., has just published an attractive catalog of nearly 150 pages, bound in red leather. It illustrates and describes the many sanitary lines manufactured by this company. It introduces the company's products in a pleasing manner by the presentation of several complete bath-room outfits. The infant's bath, on page 41, is an interesting product, and several fine specimens of solid-base baths are shown to advantage. The portable bath, porcelain-enameled, with iron draw-handle and rubber-tired wheels, would appeal to an Englishman, if he didn't have to "blooming well pull it himself, doncherknow." The man who made up page 89 had a very happy idea. It can be called a confidence-producing page. You will understand what we mean when you see the catalog. The lines presented are varied, covering a large range of utility, and the catalog itself is worth sending for and putting into place for future reference. When you write for it, mention "Domestic Engineering."

The A. G. Cripps Mfg. Co., Akron, O., is sending out a folder which advertises a circulator-valve, designed to appeal to steamfitters by offering, through its use, reduction in labor, cost of pipe and fittings and radiator-valves, and also the amount of water to be heated. A folder will be mailed to all inquirers and full particulars given to those requiring detailed information.

Oswego tools are specially designed for boiler-makers, machinists, pipe-workers, and all practical machinists. They are manufactured by the Oswego Tool Co., Oswego, N. Y. They include Stillson wrenches, wrenches of other types for special purposes, stocks and dies, pliers, expanders, vises and nipples. The Oswego catalog devotes 60 pages to illustrations and descriptions of the principal lines manufactured by the company. Those interested in supplies of this kind will find the Oswego book a distinct aid in the selection of the type of tools they desire. Catalog can be obtained upon application. Mention "Domestic Engineering."

It is a bold man that endeavors to define the word "miracle" nowadays. The priest was trying to explain to Pat what a miracle was, without much success. Then he told him to bend down and took a running kick at him, and after the pupil had recovered himself from a sand-heap 15 ft. away, he asked him: "Did it hurt you?" "Bet your life it hurt me," said Pat. "It would have been a miracle if it hadn't," said the father. In other words, it took a practical application to define the meaning of the word. In just as forceful a way, but without the pain attending it, the Toledo Pipe Threading Machine Co., Toledo, O., has undertaken to describe a "Pipe Threading Miracle" within the stout covers of a bracing little catalog devoted to the showing of how "One Man Does the Work of Two" by using Toledo tools. The reading-matter is a romance of industry, applied to 20th century practical use. How the Toledo tools came into being, and the varied uses to which they have been put, are effectively shown in story and illustration. Whether a user of Toledo tools or not, the reader can study with advantage the photographs presented and get several valuable kinks from them. To read the Toledo catalog is a brain-bracer. It is devoid of fulsome adjectives, and keeps to its story from the first page to the last, without ending up "To be Continued in Our Next" at the critical moment. You can obtain "A Pipe Threading Miracle" for the asking. Tell the Toledo folks that you read about it in "Domestic Engineering."

The Marsh Valve Co., Dunkirk, N. Y., is mailing to all inquirers an illustrated booklet devoted to the Marsh high-grade valves. The special features of the Marsh radiator-valves are a quick-opening action secured by the use of right and left-hand threads, working against each other and a double-seating, which provides not only for the effective closing of the valves, but, when they are open, prevents leakage of steam and water around the valve-stem or through the stuffing-box. Practical steamfitters will be interested in this booklet and can secure it by request from the company.

The International Heater Co., Utica, N. Y., is distributing a catalog entirely devoted to an illustrated description of its "Empress" boilers. This is in accordance with the company's custom of grouping its various lines in individual products. Deep combustion-chambers, generous ash-pits, balanced grates, thin water-ways, long fire-travel and extensive prime heating surface are the main talking points for the "Empress." The illustration of the sectional arrangement is particularly good. Tables of dimensions and capacities terminate an effective catalog, a copy of which may be procured from the manufacturers. Mention "Domestic Engineering" as the source of your request.

THE METAL MARKET

CONTINUED IMPROVEMENT IN IRON.

Considerable interest is being manifested in the iron market by consumers all over the country. It is true that sales have been for small lots, but they have been numerous and the iron trade shows a decided improvement. The weak spot has been the decline in the price of Southern iron to $10, Birmingham. Prices have not followed the activity, but, should buying continue, it is altogether probable that the small floating supply, comparatively speaking, of unsold iron will be quickly absorbed and prices should advance from $1 to $2 a ton within a short time. The manufacturers of cast-iron pipe have purchased rather freely and the pipe business shows quite a little improvement. This is especially true in the West, where numerous new water-supply installations are being made, especially in small villages. In time this will call for a larger volume of plumbers' supplies, either later this season or next year. The manufacturers of plumbers' enameled ware have been conspicuous buyers in the market. Quotations are as follows:

No. 2 Northern foundry, Birmingham	$10.00
No. 1 Northern foundry, New York	15.50 to $15.75
No. 2X Northern foundry, New York	15.25 to 15.50
No. 2 plain, Northern foundry, New York	14.75 to 15.00
No. 2 Northern foundry, Chicago	15.00

NO IMPROVEMENT IN CAST SCRAP.

The market is still unusually quiet and there is an enormous amount of scrap for sale. The rolling mills are very discriminating in their purchases and general consumers are not looking for new supplies. Prices are largely nominal and are unchanged, as follows:

No. 1 yard wrought, long	$11.50 to $12.00
No. 1 yard wrought, short	10.00 to 10.50
Heavy-melting steel scrap	10.50 to 11.00
Machinery cast	11.00 to 11.50
Wrought pipes and tubes	10.00 to 10.50
Malleable castings	10.00 to 10.50
Wrought trimmings	6.25 to 6.75
Cast borings	5.25 to 5.75
Stove plate	8.50 to 9.00
Light iron	4.25 to 4.75

SPELTER.

The market has advanced sharply, about 15 points. Spelter in New York is held at 5.80 cents and 5.60 to 5.65 cents East St. Louis. The demand, however, does not appear to be especially active.

COPPER MARKET STRONGER.

Prices of copper are firm and although trade has not been especially active, there is a great deal of new business coming up and consumers are buying much more freely. The attitude of some of the larger consumers in buying for future consumption is largely responsible for the better tone to trade. An attempt was made during the week to force the price of electrolytic to 13 cents. This failed, but the market did not lose any strength by reason of the move. It may have been because of the Coronation holidays in London that the movement could not be carried on. With the reports of better business coming in from all parts of the country it would not be at all surprising that the markets should advance to 13 cents within the next month. No large sales have been reported, but numerous sales of carload lots have been noted and it is difficult to obtain single carloads for early delivery. Electrolytic is selling at 12.62½ cents and Lake at 12.75 cents, for large lots cash New York.

A DULL MARKET IN TIN.

Due to the holiday season in London, speculation in tin has not been as rampant during the last month. It is evident, however, that the tin syndicate has very good control of the situation and should business improve, as is anticipated, there is no reason why the price could not be forced to the recent high level of 50 cents. For the time being, however, tin is selling at 45 to 45.25 cents in large lots, New York.

LEAD MARKET HIGHER.

Prices on lead have advanced and spot quotations in New York are 4.45 to 4.50 cents. In St. Louis the market is somewhat unsettled with sellers holding out for 4.40 cents and buyers decline to pay more than 4.30.

OHIO NEWS.

Columbus, O.—The work of remodeling the old Neil House, one of the oldest hotels in the West, has been started by the new management which took charge of the hotel January 1st. The remodeling will consist of new plumbing and heating apparatus throughout and an improved ventilating system. It is believed that $40,000 will be spent in the changes.

Alliance, O.—Architect W. T. Mills, of Columbus, O., is taking bids for a heating and ventilating system at the old school building.

Ottawa, O.—At a recent meeting of the board of county commissioners of Ottawa County, O., the contract for the heating apparatus of the new court-house was awarded to the Samuel A. Esswein Heating and Plumbing Co., of Columbus, at its bid of $5,675.

Akron, O.—After a long discussion of the matter, the board of control has awarded contract for the erection of a public-confort station to Hunt & Wigley. The price is $7,470. The station will be erected at the corner of Main and Market streets.

Cleveland, O.—The West End Plumbing & Heating Co. has recently been formed, with a capital stock of $5,000. Albert T. Ball is at the head of the new firm.

Columbus, O.—The Roberts Plumbing Co. has been awarded the contract for the construction of a new heating system and the installation of water-closets at the Y. M. C. A. building.

New Lexington, O.—The New Lexington Water Co. has been incorporated with a capital of $50,000 to erect, construct, maintain and operate a water-works system. The incorporators are J. F. Cole, George A. Harrop, W. L. David, John M. Garfield and Frank H. Linn.

Columbus, O.—Bids will be received by the board of county commissioners of Franklin county on July 12th for installing a new heating system in the court-house after plans and specifications by Architects Fred W. Elliott and W. H. Tremaine. The work is to be completed by September 15th, 1911.

ADVERTISERS, TAKE NOTICE!

"We had to threaten to shoot Stimpson, the gunsmith, to induce him to advertise in the Kicker last week," says the Arizona Kicker, "and he now admits that he sold $250 worth of goods on a $3 ad. We seldom make a mistake about such things."

We agree with him.

NEW ENGLAND NOTES.

Massachusetts.

Boston.—Mayor John F. Fitzgerald has approved a contract with Bradlee & Chatman for steam-fitting in the power-house and tunnels at the City Hospital. Bids on this work were as follows: Bradlee & Chatman, $12,543; Lynch & Woodward, $14,362; Ingalls & Kendricken, $14,500; W. W. Campbell & Son, $15,732.

Boston.—The Fairbanks Co. has been awarded a contract for furnishing the city with cast-iron valves for the Calf Pasture pumping station. Their bid was $423 for 30-in. and $117.47 for 20-in. valves.

Boston.—M. E. Culverwell, Boston's only hardware woman, has opened a hardware and plumbing supply store at 16 Devonshire St. The new store is being operated as a branch of the main store conducted by Mrs. Culverwell at 901 Washington St.

Lawrence.—A hardware and supply store has been opened at 174 S. Union St. by Frank E. Lenane and Daniel J. Lenane under the firm name of the Lenane Supply Co.

Springfield.—A. J. Beaumier has been awarded the contract for plumbing in two frame tenement blocks which Maurice L. Angers is soon to erect on Franklin street.

Pittsfield.—Robert Huggs has awarded contracts for the erection of a two-store brick block on the corner of Seymour and Wahconah streets. The plumbing is in the hands of John Retallick.

Marlboro.—The Marlboro plumbers went upon a $4 scale on June 1st., the increase being from $3.75. There was no strike or strike talk, the increase being mutually agreed upon.

Fall River.—The action of Mayor Higgins in appointing Richard J. Dwyer as city plumber and placing him in charge of all repair work on city buildings, has aroused the indignation of the master plumbers of the city. At a recent meeting they appointed a committee to wait upon his honor in regard to the mater. According to the rating of the state board of examiners of plumbers, Mr. Dwyer is a journeyman, and the master plumbers claim that his appointment as city plumber will not stand the test of law. They are also opposed to giving all the repair work, which in the past has been distributed among them all, to one man.

Beverly.—Mayor Dodge has vetoed that section of the new plumbing laws, recently adopted by the city government, which requires back venting. His honor in his veto declares that he considers it an unnecessary expense.

Clinton.—Frederick Murphy has been appointed inspector of plumbing to succeed C. C. Crowley, who was removed from office some time ago. Mr. Murphy was selected following an examination in which half a dozen applicants participated. During the time between Mr. Crowley's retirement and Mr. Murphy's assuming office, the position was filled by Albert Fairbanks.

Athol.—The town has appropriated $1,000 for the installation of a new heating-plant in the Main street school house.

Fitchburg.—A new set of plumbing ordinances is being compiled by a special committee appointed by the city government for the purpose. A rough draft has been prepared and it is expected that the ordinance will be in condition to be acted upon early in July.

Beverly.—Carroll & Wolland have the sub-contract for the plumbing in two business blocks on Greenwich avenue for W. C. Smith.

Quincy.—The Norfolk county commissioners are advertising for proposals for constructing, heating, ventilating, plumbing and wiring of a building to be used for a district court. Bids will be received at the office of the commissioners in the county court-house at Dedham.

East Lexington.—John E. Briggs, who has been carrying on a plumbing business at his home at 165 Massachusetts Ave., has opened a shop at 14 Depot Sq.

Boston.—Mayor Fitzgerald has approved a contract with the Lumsden & Van Stone Co. for a steam-piping system at the Calf Pasture pumping-station, the contract price being $6,285. The only other bidder was the William H. Gallison Co., whose bid was $6,527.

Worcester.—Proposals for installing new heating and ventilating apparatus in the Adams square and Thomas street school buildings have been received by the superintendent of public buildings and the contracts will shortly be awarded. The following bids were received for the Adams square and Thomas street buildings, respectively: N. J. Smith, $5,765; $4,750; M. D. Holmes & Son, $5,275; $4,431. J. W. Callahan & Son, $6,131; $5,698. A. Burlingame Co., $5,431; $4,650. Edwin Hawes Co., $6,596; $5,195. Central Supply Co., $6,194; $5,223. O. S. Kendall & Son, $5,822; $4,869.

Lawrence.—Peter B. Davey has been awarded the contract for installing shower-baths in the Tarbox school. He was the lowest of several bidders.

New Bedford.—Barnett & Goodman, Inc., is the title of a new firm to deal in plumbing supplies in this city. The incorporators are Charles Goodman, president; Benjamin Barnett, treasurer, and Ida Barnett. Another newly incorporated concern doing business in New Bedford is the Gunning Boiler & Machine Co. Andrew Gunning, Nelson T. Fuller and John B. Lowney are back of this latter concern.

Winchendon.—Hill & Bosley have purchased the heater patterns of A. S. Parks and are to continue the business of Mr. Parks, constructing heaters and doing repair work.

Springfield.—The Mercy Hospital corporation has secured a permit from the city for the erection of a central heating plant and laundry building to be erected on Butler street. The sub-contractors have not yet been announced.

Connecticut.

New Haven.—Proposals for plumbing, heating and ventilating in connection with alterations at the Winchester school, will be received at the office of the board of education in this city until 8 p. m. on Friday evening, June 30th.

Hartford.—It cost William Joseph $25 to do a job of plumbing without either license or permit. He was in court on two charges and was fined $15 for doing work without a license and $10 for failing to secure a permit.

Waterbury.—W. R. Wallace has been awarded the contract for plumbing and furnace heating in Michael Guilfoile's new residence, which is now in process of construction at the corner of Robbins and Merrill streets.

Bridgeport.—N. B. Curtis & Co. are to do the plumbing and tinning on the addition to the plant of the Bridgeport Enamel Dial Co. on Central avenue. The building will be of brick, one story high, 32x77 ft.

Bridgeport.—C. S. Eames & Co. have the contract for plumbing and heating in the handsome residence which is being erected for Mrs. Katherine E. W. Clark on Mill Hill avenue.

Stratford.—The contract for plumbing Assums' new bakery has been awarded to Harold Lovell & Co. The contract includes the plumbing of the bake-shop and a dwelling connected, steam and gas-piping, and other work.

Bristol.—R. A. Tallion has sold his plumbing business to Roberts and Arnold. Mr. Tallion has been located on Hull street for many years.

Waterbury.—Devini & Dunphy have opened a new and up-to-date plumbing establishment at 232 Bank St., where they are prepared to do all kinds of plumbing and heating work.

Bridgeport.—E. C. Goldsmith has awarded the contract for plumbing and heating in his new house in Stratford to H. C. Rowell & Co., of this city.

Hartford.—The Sterling Blower Co. has contracts for installing ventilating systems in the Lincoln, Northern and Rockwell schools.

Maine.

Bridgton.—Wales & Hamblen Co. have a large crew of men at work doing an extensive job of plumbing at Wentworth Hall, Jackson, N. H. Another crew, under Earl L. Douglass, is plumbing the summer residence of Miss Sallie P. Fisher, at the mouth of the Songo River. Other work done by Wales & Hamblen the present season includes the plumbing of the Kitson mansion and E. V. Spooner's Long Lake Lodge at North Bridgton and the residence of Prof. E. H. Chubb, a New York educator, at Lovell.

Fryeburg.—Leslie Anderson is soon to open a plumbing establishment in this town.

Augusta, Me.—The Maine legislature has passed an act providing for the appointment of plumbing inspectors in cities and towns. The act provides that in every city and town where there is a sewerage system or water supply system the board of health may appoint one or more inspectors of plumbing for a period of one year, and in every city and town where there is a system of water supply or sewerage at least one member of the board of health shall be a practical plumber. Other details as to the making of rules and regulations regarding inspection and materials to be used are provided by the act.

Vermont.

Jeffersonville.—S. E. Pope has a crew at work at the residence of C. N. Stygles at Underhill, where they are engaged in installing a bath-room and other plumbing fixtures.

Vermont.

Middlebury.—Contracts have been awarded for the new ten-room high-school building. The plumbing and heating will be done by Allen Calhour & Son, of this town.

St. Albans.—J. E. Butler has opened a new plumbing store in the Burns building at the corner of Center and Federal streets. Mr. Butler is well known in the plumbing and heating business in this city and is already assured of generous patronage.

Rutland.—E. L. Jangrow, of this city, and F. T. Lowery, of Granville, N. Y., have formed a partnership to conduct a plumbing business. Their headquarters will be in West street, and the new concern will do business under the name of the Rutland Plumbing Co.

NEW INCORPORATIONS.

Danville, Ill.—Inland Supply Co., capital stock $35,000, has been incorporated by H. C. Yelton, Otterbein Finney and George Harroun, to do a general plumbing and heating business.

St. Louis, Mo.—Walt N. Fisher, John Schuedding and Edward Schuedde have incorporated the Isolated Steam Heating and Maintaining Co., with $2,000 capital stock.

Toledo, O.—The George J. Gilsdorf Co., has been incorporated with a capital of $10,000 to conduct a plumbing and heating business. The incorporators are: George J. Gilsdorf, W. S. Bauserman, William Lower, Carl J. Lindeckes and C. C. Whitmore.

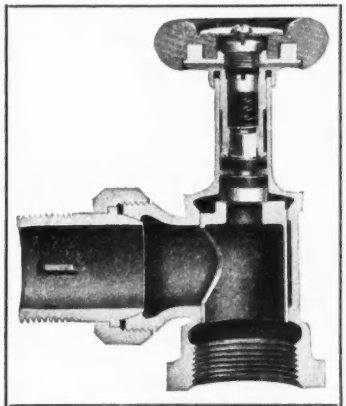
Eldridge, Ia.—Elmer E. Ross has opened a plumbing establishment in this town.

Rice Lake, Wis.—Mike Knudson and Wm. Hicks have recently formed a partnership and are finding all the work they can handle.

Allegan, Mich.—Thomas Corboy has recently purchased the interest of Geo. Kirshman in the plumbing firm of Corboy and Kirshman, and will carry on the business at the present location on Hubbard St.

Macon, Mo.—C. C. Jacobs, of Kirksville, Mo., has purchased the business of the Wallace Plumbing Co., in this town. Mr. Wallace intends to engage in some other line of business.

For four successive nights the hotel man had watched his fair, timid guest fill her pitcher at the water-cooler. "Madam," he said on the fifth night, "if you would ring, this would be done for you." "But where is my bell?" asked the lady. "The bell is beside your bed," replied the proprietor. "That the bell!" she exclaimed. "Why, the boy told me that was the fire-alarm, and that I wasn't to touch it on any account."—Success Magazine.



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PACIFIC COAST LETTER

San Francisco.

Conditions here have taken a rather peculiar turn, and complaints are being made that a larger part of the plumbing work than is ordinarily the case is being done by the small shops. A large part of the building now going on here is in the extreme outlying districts, where small homes for workmen are going up in great numbers. The plumbing work necessary in the structures is not extensive and is being secured largely by the small neighborhood shops. Journeymen plumbers are calling attention to the fact that the owners of these small shops are doing a large part of the shop-work themselves, and that, as they are not compelled to observe union rules or union hours, they are enabled to turn out much more work than journeymen in the large shops. This places the large shops at a disadvantage and they are not in a position to secure much of this class of work. The owners of these large shops are not complaining but their workmen are doing this for them, the latter recently making the proposition to the Master Plumbers' Association that a rule be established making it mandatory that all pipe of two inches in diameter or under should be cut on the premises where it was to be used. The master plumbers lost no time in rejecting this proposal, looking upon it as a step backwards. While there are not many very large jobs now being let here, there is quite a bit of hotel and apartment-house work and the large shops are fairly busy. There is a very large amount of big work in immediate prospect, and it is anticipated that building will be very active this fall. Work is to be commenced soon on the $1,000,000 apartment-house on Nob Hill, a $500,000 office-building on the Blythe block on Market street, the 11-story Standard Oil building on Sansome street and a 10-story office-building at Sutter and Montgomery, together with additions to both the Palace and St. Francis hotels.

The employment of eastern men to plan western buildings has long been decried by Coast architects and some of the specifications for work in the new City Hall to be erected by the city of Oakland, across the bay from San Francisco, are being used as a basis of a further protest against the employment of eastern architects. In the planning of the heating plant especially a woful ignorance of California climate was shown and the plant as planned would be considered in the nature of a curiosity here if erected according to specifications. It was designed to meet the requirements of a cold New York winter and included a double system of pipes, so that if one was damaged by frost another would be available to save the freezing inmates of the City Hall. Asbestos covering for the pipes was provided for and in the more exposed places this was to be protected in various wonderful fashions. The bids for the installation of the heating and ventilating systems were all turned down by the Board of Public Works, as they were much too high, but new bids will be called for at an early date, as the specifications are being changed and new plans drawn. It is believed that by installing a system similar to those in common use in office buildings here a saving of from $8,000 to $10,000 can be effected.

It is anticipated that within a short time work will commence on the erection of a number of septic tanks in various places in the state, as a result of a change in the law recently passed giving power to the State Board of Health to enforce regulations designed to put an end to the pollution of streams with sewage. Dr. F. W Snow, secretary of the State Board of Health, recently made the following statement in reference to the matter: "If it is possible, the state board will eliminate the disposal of sewage in streams all over the state. There are cities and towns where physical conditions are such that the natural way for such disposal is through streams, but the board can and undoubtedly will require that the sewage be prepared before entering the creeks or rivers." At the present time there is an unusual amount of activity on the part of municipalities in this state to install sewer systems, and more plumbing work is under way in the interior towns than ever before, plumbers in the small places being much more active than in the larger cities.

M. Levy has secured the contract for the installation of the plumbing system in a three-story and basement frame structure being erected by Joseph and Thomas Keenan at Capp and 19th streets, the contract price being $2,347.

Frank J. Klimm has been awarded the contract for the installation of the plumbing system in a three-story building owned by Morris Oser, which is being erected at the corner of Gough and Hayes streets. The contract is valued at $3,725.

Work is progressing rapidly on the construction of the new temporary City Hall on Market street near Eighth, and a large part of the rough plumbing work has already been installed by the plumbers employed by Contractor Frank J. Klimm. This structure is a reinforced concrete building and the plumbers must be on hand constantly to keep pace with the concrete workers.

Boscus Bros. have secured the contract for the installation of the plumbing in the reinforced concrete building to be erected by John Meierdierks on Howard street, east of Fourth. The consideration mentioned in the contract is $3,720.

The master plumbers of San Francisco are already making active preparations for the annual picnic and this, as usual, will be held at Fernbrook Park. This great event of the season will take place on July 29th and will probably be participated in by plumbers from all around the Bay.

J. O'Mara has the contract for installing the plumbing system in the engine house being erected on Brazil avenue, the contract for this having been awarded on his bid of $1,955.

Lettich Bros. and the John G. Sutton Co. have the contract for installing the plumbing, heating and ventilating systems in the eight-story and basement fireproof structure being erected by the Hall Association of the Native Sons of the Golden West on Mason street near Geary.

There is still a great deal of school building going on and with the new work planned it is figured that during the coming year there will be more work of this character under way than ever before in the history of the state.

Other California Happenings.

Oakland.—The bond election recently held was carried by a large majority and within a short time almost $3,000,000 will be available for the erection of new school buildings and a public auditorium. This bond issue is one of the largest ever voted in the state for school purposes, and means a large amount of work for plumbers and heating engineers.

Sacramento.—A bond election was recently held and $800,000 provided for the erection of new school buildings and additions to old ones.

Visalia.—Plans are being drawn for a new building for the Visalia Club, to be equipped with a gymnasium shower-baths and natatorium.

Fresno.—Bids are being invited by the board of trustees for the installation of the plumbing and the steam-heating systems in the building to be known as the Playground Pavilion.

Sacramento.—At a recent examination of plumbers held T. E. Waterman and T. J. Headley were successful in passing and are now qualified to become master plumbers.

Difficult to Draw.

A teacher asked her class to draw a picture of that which they wished to be when they grew up. All went diligently to work except one little girl, who only chewed her pencil.

"Don't you know what you want to be when you grow up, Anna?" asked the teacher.

"Yes, I know," replied the little girl, "but I don't know how to draw it. I want to be married."—Mack's National Monthly.